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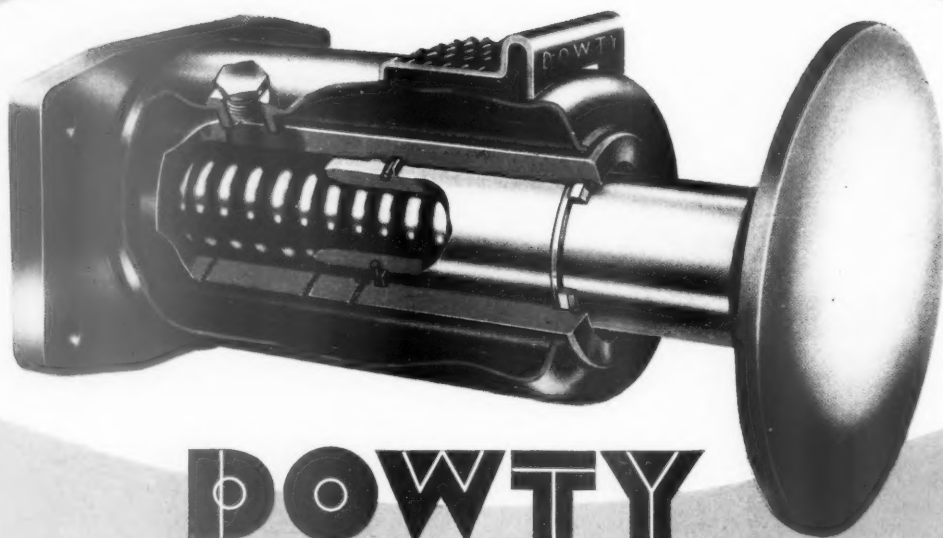
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Double-Edged Weapon

ALL three railway unions, the National Union of Railwaymen, the Associated Society of Locomotive Engineers & Firemen, and the Transport Salaried Staffs' Association, have now submitted claims for wage increases. The claims of the first two unions have been under consideration by the Commission for the past three weeks, and an answer may be expected shortly. If, as seems probable, the Commission cannot see its way to granting any increases in present circumstances, the several claims will eventually be referred to arbitration, and, to judge by what has taken place in past years, the affair will follow what has come to be its usual form. There will be signs of a deadlock at Christmas time, with the threat of a strike by the N.U.R. and A.S.L.E.F. In previous years strikes—at a period of the year which would cause the greatest hardship to the public—have been avoided by conceding wage increases to the unions. The leaders of the N.U.R. and A.S.L.E.F. in the past have counted—as it turned out, with success—on gaining their objectives, or a large part of them, with the help of these threats. Public opinion, however, is now changing. The public has already realised that railway charges, which on previous occasions have been raised to meet the increased cost of wages, are a basic item in com-

modity prices and the cost of living. It is now also realised that the majority of railwaymen, those in the lower-paid grades, are not, by the standards of a good many workers in other industries, badly paid as a class, or as deserving of public sympathy in this respect as they once were. Have the union leaders considered what would be the effect of a strike at Christmas? The men would lose the last vestiges of what public sympathy they now command. In addition, much traffic would be lost to the railways, probably permanently, as happened after the footplatemen's strike in the summer of 1955, and there would be immense loss of railway revenue. The railwaymen concerned would suffer, as would the public, and there would probably be unemployment on the railways as well. The unions will be playing a dangerous game if they try to support their demands this autumn with threats of strike action. They might be taken at their word, with very grave consequences for themselves apart from the resultant national calamity. It is not too late for them to exercise moderation and common sense.

Machine Tool Orders

THE trend of the order books of the machine tool industry has been downward for some time, largely because increased production capacity has been catching up with the backlog of orders. The decline in August to £88.19 million is a continuation of this trend. In that month, however, deliveries fell also, and at £6.42 million were the lowest this year, though slightly more than in August, 1956, when they amounted to £6.17 million. The rise in values in the intervening year may well mean that the physical output was no more than in 1956. Orders fell from £7.23 million in July to £5.67 million in August, a decline shared between home and export orders. It is possible that the sharp fall was caused in part by potential customers delaying orders until they had visited the European Machine Tool Exhibition held in Hanover on September 15-24. This explanation, however, does not apply with great force to home orders, and the limitation to expansion and re-equipment imposed by the credit squeeze and latterly, dearer money, is probably the main factor here. At £4.46 million, home orders were below the average of £4.81 million for the first eight months of the year, an average which is itself some 10 per cent below the equivalent figure for 1956. The reduction in the number of orders enables better delivery dates to be quoted, but it remains to be seen whether the pressure for increased wages in industry will result in higher prices in the months to come.

Trade Prospects with China

THE Chinese Government respects the quality and price of British goods and is very interested in buying on the British market. Mr. F. J. Erroll, M.P., Parliamentary Secretary to the Board of Trade, expressed these encouraging sentiments on his return last week from a visit to the Far East. At present, the precise nature of Chinese requirements is not known since details of their projected Five-Year Plan will not be made public for about another year. The position appears to be that the Chinese, who have a natural mechanical aptitude, are mainly reliant on Iron Curtain supplies of machinery and technical knowledge. Russian and East European design and installation is freely and gratefully acknowledged by the Chinese, who admit that the acquisition of technical information is an urgent necessity for their material advancement. In this respect, British manufacturers might do well to copy the long-established American practice of transmitting a constant flow of technical matter describing in some detail the sender's product as a means of supporting the company's advertising in the area. It appears that it may as yet be early to think in terms of sending teams of installation and maintenance engineers with British products to China, but the Chinese are sympathetic to the idea of advice from the consulting engineer level. Payment in terms of goods at present imported is prompt—the Chinese are not interested in long-term credits. An important

aspect of any seller's market is the correct approach. This might with advantage be discussed with the Board of Trade as a result of Mr. Erroll's tour since, in a country in which commerce is directed by a single body, the problems involved obviously require specialised knowledge in their solution.

Expansion and Improvement in South Africa

AN account by Mr. D. H. C. du Plessis, General Manager of the South African Railways, is published on another page, of the far-reaching measures which have been and are being taken by his administration to enable the railways to meet constantly growing demands for transport. It is remarkable that, in a community of some 14,000,000 people, it has been possible to invest some £500,000,000 in railway improvements over the past 11 years, including expenditure for works to be started or completed after March 31 last. Railway productivity, as Mr. du Plessis shows, has been increasing rapidly. The 3-ft. 6-in. gauge is a handicap as regards train speeds. In most other aspects of railway activity the S.A.R. has little to learn from any other system in the world. More particularly, in undertaking re-alignment and improvements to track and structures, in implementing electrification schemes, and in providing housing for its staff, the railway administration is setting an outstanding example of energy and efficiency.

Coal Economies Through Abandoning Steam Traction

THE value to the national economy of the British Railways modernisation plan as a means of reducing consumption of the best quality coal, through abandonment of steam traction, was emphasised, last Tuesday, by Lord Mills, Minister of Power; he was speaking at the Anniversary Luncheon of the Institute of Transport, a short description of which function is given on another page. Of the 33,000,000 tons of fuel consumed annually by inland and coastal transport in and around the United Kingdom, he stated, about 14,000,000 was used by the railways in the form of coal and electricity. The replacement of steam by diesel and electric traction would mean, eventually, the saving of some 12,000,000-13,000,000 tons a year of best quality coal. Next to the householder, the railways are the biggest consumers, in locomotive fireboxes, of large coal, the proportion of which mined every year is declining because of increased mechanisation of the mines. This grade of coal is not burnt in generating stations; so that, apart from electric energy produced by atomic means, railway electrification will ameliorate the national fuel situation.

New York Central—Pennsylvania Merger

THE announcement on November 1 that the Pennsylvania Railroad and the New York Central System are considering the possibilities of a merger seems to have caused some surprise in the U.S.A. The preliminary discussions and studies have already taken place and presumably have shown that economies can be achieved by amalgamation. These two railways had very large deficits on their passenger operations in 1956: the Pennsylvania \$54,683,000 and the New York Central \$48,476,000. Deficits of this magnitude eat into the profits from freight operations, which have themselves fallen recently. In the first nine months of this year the net receipts of the New York Central have fallen to \$8.6 million, compared with \$28 million for the same period last year. The Pennsylvania has suffered a fall from some \$31 million to \$19.5 million. The New York Central, in fact, is believed to have used income from other activities than traffic operation to help to pay its fixed costs. The combined systems would control some 22,000 miles of track. It has been suggested that the merger of two previously competing lines would be looked on with considerable disfavour by the Interstate Commerce Commission. Possibly some assistance will be given to the railways—perhaps in the form of tax remission by Federal or State authorities—to help them out of their present difficulties.

Railcar Power Equipment Research

THERE are few suitable lines in this country, both from a gradient profile and an availability point of view, to adequately test the railcar power equipment to the standard which Rolls-Royce Limited considers necessary for its products. This is the concept underlying the construction of the railcar engine test bed described on another page. A notable feature is the continuous automatic cyclic control which simulates typical loadings as would be experienced by the power components in actual line service; these include starting on gradients, level running, coasting, braking, and idling. The bed, which represents half of a standard railcar engine and transmission, provides for testing both the railcar engine and the Twin Disc torque converter manufactured by the company. The trend of increasing the power/weight ratio of railcars in this country is seen in the power unit under development, which is a pressure-charged version of the eight-cylinder railcar engine; this has an increased power output of 320 h.p.

Rapid Inspection of Viaducts and Bridges

TO facilitate rapid inspection of viaducts and high-level underline bridges equipment has been developed by the Chief Civil Engineer's Department of the North Eastern Region of British Railways. It is described elsewhere in this issue. The unit is mounted on a 52-ft. flat wagon. When in operation it reaches over the side of a high-arch viaduct or bridge and two hydraulically operated arms, one 21 ft. and one 17 ft. long unfold down the side to carry the examiners to a depth of 29 ft. below rail level or to 15 ft. in under the arch. The examiners travel below in a cage on the end of the lower arm and by three simple levers fitted in the cage remotely control the movements of the cage under the arch and by means of a winch the movement of the wagon on the track above. By using this machine it will be possible to carry out work, that in the past could have taken days or weeks, in a matter of hours. The unit was originally conceived by Mr. A. Dean, Chief Civil Engineer, North Eastern Region, as an extended application of the road vehicle of similar design used for overhead wiring and similar work.

High-Speed Diesel Trials

THROUGHOUT the past 12 months continuous test running has been undertaken by the London Midland Region with a twin-car diesel-electric train set; and it was this, lent to the Eastern Region for a few days, which made the high-speed test runs on October 25 and 26 on the Sheffield-Kings Cross and York-Kings Cross lines as reported on page 522 of our November 1 issue. The train consists of two coaches rebuilt at Derby from two old Watford electric motor coaches; and beneath the floor of each was slung a Paxman six-cylinder pressure-charged flat engine of 450 b.h.p. and an attached B.T.H. main generator. For month after month this set, weighing just over 100 tons, was run on a fast schedule between Derby and Carlisle along the old Midland main line, making a return trip of 378 miles in a day. A mileage of some 50,000 was built up in this trial running without any defect except one blown gasket; and tests were made also on the Liverpool-Manchester section, to judge performance of multi-car diesel trains on the proposed Leeds-Liverpool service. A train of such cars in view of the performance noted might be an alternative to the trains now under construction with a power plant above floor level at each end.

Last Steam Locomotive from Horwich

COMPARATIVELY new among locomotive-building works established by English railways, Horwich has reached a further definite stage in its 68-year history with the construction of its last steam locomotive. Begun in 1886 by Aspinall in his capacity as chief mechanical Engineer of the Lancashire & Yorkshire (he was one of

the first, if not the first, to bear that title), Horwich completed its first locomotive in 1889; but rejuvenation of the "Lanky" motive power was so urgent that by 1904, just after George Hughes took over the chieftainship from H. A. Hoy, the locomotive building total had reached the 1,000 mark. Because of its newness, Horwich was able to evolve methods which were efficient compared with most of the older works, and that tradition tended to be maintained even after the formation of the L.M.S. in 1923. Nevertheless, from that time, and particularly since nationalisation, the rate of new construction slackened off, and a greater proportion of capacity was allocated to heavy repairs. But Horwich has maintained its reputation as a trainer of, and as an attraction to, competent mechanical engineers, distinct, one might say, from locomotive designers; and as future new construction will be concentrated on diesel locomotives the designs are likely to be those standardised by the British Railways Central Office.

Loss to Railway Labour

THE widespread personal regret which is occasioned in all grades of British railwaymen by the death of Mr. T. Hollywood, President of the National Union of Railwaymen, and Mr. J. Campbell, General Secretary of the Union, is accentuated by consideration of the implications of the loss of these two well-known and respected leaders of the union at a critical time of wages negotiations. The effect of the removal from the scene of Mr. Campbell in particular, at a moment when a new wage claim has just been initiated, brings a very large element of uncertainty into a situation already fraught with the gravest danger to the national economy as well as to the railway industry.

Mr. Campbell succeeded Mr. Figgins as General Secretary in 1953, and already he had become a seasoned negotiator as well as one of the most prominent personalities of the British trade union movement. He had been a railwayman since 1913, and came of a railway family. Although, as he had to be, a man both militant and determined, he was essentially a realist and was far-seeing as well as being in many ways moderate. He was staunchly anti-Communist in his beliefs and, because of his strength in the union, was often able to restrain less responsible colleagues.

Mr. Hollywood had neither the power nor prestige of Mr. Campbell, but he was respected and was also a moderate. The joint loss of these two leaders must change the balance of power within the union at a time when there is more than ever need of wise guidance and experience to ensure that a realistic policy is both understood and followed by the railwaymen.

The successor to Mr. Campbell is likely to be Mr. S. F. Greene, who is Senior Assistant General Secretary. He will act in that capacity until an appointment is made, but this cannot be done until a ballot of members is completed and this is expected to take about six months. Mr. Greene is a comparatively unknown quantity, but he is known as a cautious and reticent man, although perhaps less patient than Mr. Campbell. The greatest handicap at the moment is that he lacks the negotiating experience of Mr. Campbell, and cannot claim to have the same strength within the union.

His position will be further complicated by the fact that during the period of the ballot, when the present wage claim will be in course of negotiation, he can hardly avoid keeping at least one eye on his electoral chances. In a union and on an executive with a strong Left element, that could lead to a dangerous position. He will also be handicapped by the fact that he has not had the opportunity of such close personal contact with the leaders of the British Transport Commission as had his predecessor, who was well liked and respected, even when his views were opposed rather than shared.

It may well be that under the weight of the great responsibility that will devolve on Mr. Greene in the coming

months, he will demonstrate qualities of statesmanship and leadership which he has had no opportunity, as yet, to exercise. This may be one of the times when the occasion brings forth the man. Because of the gravity of the implications of a major clash on railway wages at the present time, and of the very wide repercussions throughout the nation which almost inevitably would follow unskilful handling of a situation which could have all the elements of a crisis, Mr. Greene's opportunity is very great. So also is his responsibility.

Grave Prospects for Nationalised Transport

IT is understandable that doubts have been raised in Parliament as to the ability of the British Transport Commission to fulfil the estimates in the White Papers that it would strike a balance at latest by 1962 and thereafter earn an increasingly large surplus reaching £50 million by 1970. The reasons for these misgivings are the two Government decisions; first, that announced by the Chancellor of the Exchequer, Mr. Peter Thorneycroft, that capital expenditure will be limited to £170 million for each of the next two years; and, second, the decision to the effect that if wage claims are met, the Commission will receive no greater contribution towards deficits in the form of a loan than that provided for in the Transport (Railway Finances) Act, namely, £250 million during the period 1956-62. Both these decisions would have an adverse effect on the earning power of the Commission, because they strike at the assumptions on which the estimates were made, the first directly and the second indirectly.

The estimates by the Commission were based on the assumption that its £1,200 million modernisation plan for British Railways—now to cost £1,500 million—would be carried out by 1970. In fact, the White Paper itself listed among the assumptions "that the necessary resources of all kinds will be available . . . according to programme." This apparently will no longer be the case. As pointed out in our issue of November 1, the limitation applies to all the nationalised transport undertakings; some slowing down on the programme, therefore, is inevitable, as the Chancellor has admitted. This can only mean delay in its fulfilment as orders placed for diesels, heavy rolling stock, and contracts for electrification and signalling, all essential to the fulfilment of the plan, will mature slowly over the next years, and any delay must mean postponement of the day when revenue benefits are reaped and the estimates realised. Some suppliers of railway material may not regard as undesirable the spreadover of orders which will result from a slowing down of the programme: this at least would ensure a steady home demand for a longer period and reduce the strain on their production resources.

Meanwhile, the difficulty experienced by British Railways in holding traffics is apparent from the poor returns of recent months in all except passenger traffics. The longer the railway user must wait for the improved services the plan promises the more likely he is to turn to other forms of transport. That the only hope of the future prosperity of the railways lies in the speedy execution of the modernisation programme was emphatically stressed by the Minister of Transport, Mr. Harold Watkinson, as it has been by Members and officers of the British Transport Commission, throughout Parliamentary proceedings since publication of the plan. It was to be expected, therefore, that Members on both sides of the House should find it difficult to accept the Minister's statement made after consultation with the Commission that "no revision of the estimates in the Command Paper is called for."

The second reason for fears that the deficits on the British Transport Commission's undertakings will increase in the next years, and the day when a revenue balance is struck postponed, is the attitude taken in regard to wage claims. The Government statement that the Commission can expect no help from the Government additional to that already authorised has put the railways in a most difficult position. Refusal to meet any award, at least in part, after

arbitration, would almost certainly result in strike action which could only do harm to both parties. On the other hand, any wage advances would increase the Commission's deficits which would lead to an exhaustion of Government assistance before the modernisation plan could bring in sufficient revenue to counterbalance them. British Railways would have to resort to higher charges or cut down services. Both would lead to traffic losses and most probably to reduction in overtime payments and some unemployment among railwaymen; and the net gain would almost certainly be insufficient to meet the higher costs, including wages. Again, both the Commission and the Minister have frequently told Members that increased charges are no answer to the difficulties of the Commission, for, in the face of free competition, which the Government itself has fostered, traffic would be diverted to other transport.

The Charges Scheme in Action

THE dilemma of the British Railways commercial officer, awarded on the one hand a new charges scheme, "implicit with numerous advantages and regarded by not a few as the panacea for all ills," and on the other hand having the twin disabilities of largely out-of-date equipment and widespread competition, was discussed by Mr. S. C. Harvey, Sales Assistant to the Chief Commercial Manager, Western Region, in a remarkably penetrating paper presented to the Metropolitan Section of the Institute of Transport last week. The extent of road competition with the railways may be judged from the fact that, at June 30 last, no less than 1,232,016 licensed freight vehicles were on the roads of Britain, and of these 1,047,138 were "C"-licensed vehicles. Many are small vehicles engaged in local distributive work, but some 20 per cent of vehicles operated by traders are of more than 2½ tons unladen weight, and must be regarded as in direct competition with railway services. The volume of competitive road tonnage is growing by 50-80 thousand tons a year.

As far as independent road haulage is concerned, the degree of competition is perhaps best illustrated by a recent Press report that rates of little more than prewar level are being charged in some cases. Against what he describes as "this virile and often ruthless competition" Mr. Harvey points out that the railways must pit an operational machine suffering from the effects of 30 years of under-capitalisation and the unprecedented strains of the war years. Some time must still elapse before the modernisation plan can do a great deal to rectify the situation.

As he rightly emphasises, the charges scheme alone cannot resolve the financial problems of British Railways. Traders demand a high standard of service—service suited to their particular needs. Speed, reliability, and freedom from damage may in the end be at least as important as price. The great basic industries, he believes, are, in effect, tied to rail transport for the carriage of the bulk of their raw materials or products, and certainly it is difficult to imagine that road transport could deal for long with vast quantities of coal, iron ore, and so on. It should be remembered, however, that an intensive programme of road building is in hand, and that technical progress in the design of road freight vehicles is rapid. It would be unwise to assume that bulk loads will always be a natural traffic for the railways. In time, they may be fought for as keenly as much merchandise traffic is at present.

At the moment, these bulk traffics are still being carried by rail at rates which would be quite uneconomic for road transport. In the past it has been assumed that low-rated traffic would be counterbalanced by higher-rated traffic, but higher-rated traffic is now diminishing steadily and shows no signs of recovery. The raising of these low charges would seem to be called for in these altered circumstances, but, as Mr. Harvey states, this would be considered by the Government to be against the national

interest as entailing a serious addition to industrial costs. He suggests that the position might be improved if the industries concerned made full use of the railways to carry their semi-finished and finished articles, as well as raw materials, thus giving British Railways the benefit of higher-rated traffic in some compensation for the low charges for the transport of raw materials.

The trader who is prepared to transfer to rail regular and substantial streams of traffic, instead of carrying these in his own vehicles and leaving the railways with the unattractive odd lots, will find that the railways are prepared to use their new freedom from restrictions to develop such profitable business to the full. Regular and substantial traffics to closely-related destinations are the ideal for railway working, and a speaker at the University of Michigan in February last, quoted by Mr. Harvey, drew attention to the economy of such working. "If you have 4,000 h.p. at your disposal," he said, "you can haul 5,000 tons by rail, or 400 tons by truck, or 85 tons by automobile, or 60 tons by plane." There are few traders who can offer traffic in full train-loads, but if traffic is regular, the railways themselves can plan through workings carrying the traffic of several traders. This is not possible to any great extent when traffic is erratic and handed over at short notice.

An example of what British Railways can do is the introduction last month by the Eastern Region of a regular freight train from Stratford Market to Norwich each night, on which traders can book one or more wagons at a charge of £5 per wagon, irrespective of the type of traffic they load into that wagon. If a wagon is booked daily, the charge is reduced to £4 15s., or to £4 10s. per wagon if three wagons are booked. Loading and unloading is performed by consignor and consignee respectively, without railway assistance. A similar service operates in the opposite direction. This experiment will be watched with the greatest interest. The charges for this service have been based strictly on cost, and the costing service has a great part to play in the future of railway traffic.

Sufficient progress in costing has been made already to give commercial officers a general idea of the direct costs involved in the carriage of traffic, but it is not possible to assess precisely the cost of carrying any particular traffic. The commercial officer is thus faced with the task of obtaining as high a contribution to indirect costs as possible from each consignment offered. This depends on rates offered by competitors and is in effect a return to charging "what the traffic will bear," except that if the traffic will not even bear direct costs it will normally be refused. There may be exceptions to this rule in cases where it is felt that a particular traffic will grow to an extent justifying an initial risk.

The rates for some traffics have been cut substantially by the charges scheme, a case in point being explosives traffic. Mr. Harvey comments that traders who welcome and benefit by such reductions are not necessarily willing to accept increases imposed on other traffics to improve the railway net revenue position. The charges scheme has been in operation for just over four months, and it is much too early to assess results. Many earlier rates are still in operation pending review. In the case of some traffics in the former classes 1-6, such as salt, scrap iron, and bricks, which formerly passed at standard rates and were subjected to severe increases by the new scheme, it has been necessary to introduce "bridging" scales to cover the traffic from provincial producing centres. Commodities in the former classes 16-20, such as textiles and wines and spirits, have benefited from the new charging methods, but there have been many complaints in respect of traffic in the former classes 12-15.

The charges scheme must be allowed to run for much longer before any final verdict can be given, but there are many ideas, such as two-part tariffs, which the railways have yet to exploit. As modernisation proceeds and services improve, there should be a considerable return of traffic to British Railways.

Traffic Trends in the U.S.A.

THERE has been hitherto a general belief that whereas passenger traffic is a liability to most railways in the U.S.A., freight business, broadly speaking, has thrived, and that most railways would be better off with freight traffic alone. Recent trends indicate that freight traffic this autumn is failing to come forward in the expected quantity and some railways, notably the Pennsylvania Railroad, are laying off staff. In its third reduction this year, the Pennsylvania laid off 4,000 employees in mid-October. On U.S.A. railways as a whole there was a reduction of some 12,000 in the number of staff between mid-August and mid-September. That traffic has fallen severely can be seen from statistics issued by the Association of American Railroads. The volume of freight in September was 9.6 per cent less than in the corresponding month of 1956, and the figures for the second week of October show that freight traffic originated in that week was 9.9 per cent less than in the same week of 1956.

An important long-term indication of traffic to be expected is the number of wagons on order: at October 1 the number was 71,981, compared with 122,421 a year earlier. The greatest fall in traffic has been in manufactured goods—a fact noticed also by the principal road service operators, who have suffered a fall in this class of traffic. This is one of the signs which has led to rumours of a slump; another sign is the price of scrap metal, which dropped recently to the lowest level for more than two years. The A.A.R. statistics for the week ended October 12, however, show that coal traffic was 9,409, ore traffic 10,700, forest products 9,070, coke 2,295, and livestock 2,527 wagon-loads less than in the same week of 1956; so that the fall in freight receipts is not wholly attributable to a recession in the manufacturing industries. This fall in traffic does not seem to have been expected. On the other hand, the larger railways were reasonably accurate in their forecasts of traffic for the first eight months of this year. The sudden drop in September has taken the railways by surprise; but there is evidence that some systems have long been worried about freight traffic. The New York Central has set up a road haulage company in competition with its own routes, and the largest road haulage operator in the West is the Santa Fe System.

It is not easy to ascertain the number of passenger services already withdrawn in the U.S.A., but during the first 10 years after the war passenger services were suspended on some 4,100 miles of track a year. The railways have done much to improve passenger accommodation and make travel attractive, but the volume of traffic has fallen rapidly despite this. There are signs that the new lightweight trains have been introduced as much to reduce costs as to improve service. In an article in *Atlantic Monthly*, Mr. John L. Hess maintains that none of the new stock is equal in comfort and "roadability", by which he presumably means riding qualities, to standard coaches in good condition. The same article quotes Professor Dwight R. Ladd, commenting on a three-year study of passenger cost accounting undertaken by the Harvard Business School, as stating "No recent instance of any important new train service was discovered. . . . Permanent change [in railway services] in recent years has largely involved discontinuance." This suggests that in many cases the railways would not be averse to losing passenger traffic. This view is borne out by the application for a 45 per cent increase in first class fares made last August by several Eastern railways; they were led by the New York Central and the Pennsylvania, both of which had very large passenger deficits in 1956—the New York Central some \$48.5 million and the Pennsylvania some \$54.5 million. An increase on this scale suggests an attempt to divert this class of passenger to other forms of transport, particularly the airlines. The Interstate Commerce Commission reduced the proposed increase to 20 per cent.

Very few railways in the U.S.A., if any, wish to retain their residential, or "commuter," traffic. It is by no means easy, however, to withdraw passenger services, as per-

mission must be obtained from the traffic commissions of the States concerned and also from the Interstate Commerce Commission. The reduction of services, however, turns passengers to other means of transport and at the same time, by increasing the cost of running the remaining trains, gives a valid excuse for raising fares. This combination is effectively killing commuter traffic. In fairness to the railways, it must be said that the provision of these services usually costs at least twice as much as the revenue received from passengers. One exception is the Long Island Railroad, which more or less breaks even in an area where the dense population has more than doubled since the end of the war. This is largely because although great sums have been spent on road improvements, there are traffic jams at the peak hours of enormous proportions. The State and local authorities have been forced to help the railway by reducing its taxes and allowing it to raise fares. Nevertheless, the railway cannot afford to carry out the track alterations and improvements which would enable it to take far greater traffic. There is every sign that unless the railways in general are helped by reduced taxes, or in some other way which will enable them to reduce costs, passengers in the U.S.A. will soon be relying entirely on private motorcars, motorcoaches, and aircraft, and the railways will be carriers of freight.

Passenger Comfort

MUCH thought is being exercised on obtaining the maximum comfort in new passenger coaches and railcars for British Railways consistent with reasonable payloads and with the lightness and strength of stock. Some indication of what is being done could be gained from the vehicles exhibited last summer at the British Railways Modern Railway Travel Exhibition at Battersea. These, and other vehicles recently constructed or now under construction, have been described in this journal. Apart from the problem of reducing weight in carriage bodies by using suitable metals, or in the method of construction, some principal features in carriage design now in course of active development are air conditioning and the allied problem of temperature control by automatic or other means; reclining seats; and the use of rubber in suspension.

There is a mistaken prejudice against air conditioning, on the part of some travellers. It is felt that air conditioning is undesirable in that it is believed to deprive the passenger of individual control—or at least control in the ordinary, day compartment—of the temperature of the air, and that it precludes opening of windows to admit "fresh" air direct; the latter course, it is argued, is becoming increasingly less objectionable as steam is replaced by diesel and electric traction. As long as the desire for privacy expressed by many travellers in this country results in the building of side-corridor compartment coaches for medium- and long-distance trains hauled by locomotives, it is probable that whatever form of apparatus is provided for treatment of the air, this will allow of control in individual compartments. The desire to be able to open the windows sets a technical problem of considerable difficulty for the designers of air-conditioning equipment. Even in the British climate many people feel that there are more days in the year when, because of extremes of cold, or damp, or heat, the advantage of having pleasantly warm, or dry, or cool air in the compartment outweighs the disadvantage of being unable to open windows; this supposes that this problem is not solved, of making windows capable of being opened in compartments equipped with air conditioning. The air moreover that reaches the traveller after being warmed or cooled, and purified, is not less "fresh" than the dusty or smutty air that enters the carriage direct through the open window.

How far it will be possible, on the grounds of cost, to incorporate some form of air conditioning in ordinary corridor compartments is problematical; the demand for this amenity may increase, and the necessity to compete with aircraft may weigh heavily in favour of providing

it. The high-speed diesel sets now under construction, or about to be constructed, for certain services, primarily for travellers on business, between London and some provincial centres, may be expected to include air conditioning of one kind or another.

Provision of reclining seats presents railway management with a problem of some difficulty, as only a small proportion of passengers by British Railways have experience of them in aircraft, or in trains in other countries. Reclining chairs involve open saloons, and it seems that, on the whole, though to a lesser extent than formerly, the average traveller in Britain prefers compartments. Public taste, however, sometimes changes quickly. Many more people are gaining experience of air travel, and it may be that a demand for chair cars will arise before long. At all events, a close watch should be kept on what the travelling public requires.

Bound up with the question of open versus side-corridor stock in long-distance trains is that of meals en route. The kind of meal service to be provided depends on the train, the route, and sometimes even the day of the week. Very few railway traffic officers agree on this question. The matter is being closely studied by the Regional managements concerned. In present circumstances it seems likely that, whilst full *table d'hôte* restaurant car meals will continue to be demanded by business travellers, there will be an increasing demand by other passengers for lighter types of refreshment. The service of all meals to passengers in their seats—except in Pullman cars—creates the problem of interspersing kitchens; this is an important consideration, as it is desirable to keep down the weight of trains and to keep train catering staffs to the minimum. After experimenting over a number of years, some Regions now seem to prefer running, in each train, one or more refreshment cars to which the service of meals and refreshments is confined, in sittings as necessary. It must not be forgotten that long-distance trains have the advantage over other forms of land transport vehicle, of enabling travellers to stretch their legs en route.

Good progress is being made today in extending the application of rubber to bolsters and springs so as to improve riding. British manufacturers have led the way in this development. There is no doubt that it will do much to add to the comfort of rail travel, and enhance yet another advantage—smoothness and lack of noise and vibration—that the train can offer. The importance of this means of increasing comfort was stressed by Mr. R. F. Hanks, Chairman of the Western Area Board, in his recent speech to the Institution of Railway Signal Engineers.

On that occasion he also stated—and we agree—that there was not very much wrong with the existing passenger stock of British Railways, provided that it was kept clean and in good condition. The non-corridor compartment coach is disappearing from secondary and branch-line services, which are being increasingly worked by diesel trains.

It will be a considerable time, however, before many of the corridor coaches, of which long-distance trains are made up, are withdrawn from service. Of both side-corridor and open pattern, they are the outcome of the careful thought, skill and experience of mechanical engineers of the four main-line companies before nationalisation and of British Railways. There are necessarily a good many variations—including some excellent designs immediately preceding nationalisation. Most of the stock now running in main-line trains in this country compares favourably in comfort, good maintenance, and cleanliness with that on any other railway in the world running over comparable distances. The next few years will see the placing in service on British Railways of diesel and electric trains incorporating new features, and probably of a standard of comfort hitherto unknown. In the meantime, most passengers will judge by their own experiences of travel in existing stock; the railways must ensure that their journeys are in every way satisfactory.

The problems of maintaining and cleaning coaching stock are being attacked with energy by the Regions. Cleanliness is receiving particular attention, as is shown by the carriage cleaning plants recently put into service, and planned.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

The U.S.A. Transport Situation

November 11

SIR,—A bulletin issued by the Association of American Railroads on October 21 shows that in 40 weeks to October 5 revenue wagon loadings in the U.S.A. were 1,111,640, or 3.8 per cent, below 1956, though 345,000 more loads of ore were moved. Coal loads were down 70,600 (1.3 per cent) and grain loads 33,800 (1.6 per cent), but the serious losses were 810,500 wagons of manufactured goods (5.6 per cent) and 211,100 wagons of "small" (8.9 per cent). As on British Railways, high-rated merchandise is forsaking the railroads.

In the nine months to September the railroads installed 68,804 new wagons, and on October 1 had 1,652,870 available for traffic, 19,600 more than a year ago. In September, 1956, there was an average daily shortage of 15,700 wagons; this year the average daily surplus was 18,200. Hopper wagons were in keen demand, partly because in nine months to September, 46,878,400 tons of coal were moved to ports for overseas shipment, 27 per cent above 1956 and 93 per cent over 1955. In contrast, box car loadings in the first 40 weeks this year totalled 10,936,320, 7.2 per cent below 1956. Again, in much the same period only 1,058,000 refrigerator cars were loaded, 10 per cent below 1956 forwardings. Most of the decrease was in fresh fruit and vegetables.

In September, the railroads scrapped 167 steam locomotives and installed 99 new diesels. On October 1 they had available for work 2,264 steam locomotives, 542

electric, and 26,027 diesel, which represented fully 90 per cent of the total serviceable fleet of 28,833 machines of all types. The percentage of diesels under repair was 3.8, the highest percentage for any month since March, 1956, when 3.9 per cent was recorded. These figures explain the faith of the railroads in the efficiency and economy of diesel motive power.

The bulletin closes with a statement of operating revenues and expenses for the month of August and for the first eight months of the year. Over these months revenues increased by 1.2 per cent; but expenses rose by 2.5 per cent, so that the operating ratio advanced from 77 to 78 per cent. Net income for all the 111 Class I railways decreased by \$60 million, or 11.2 per cent, to \$474 million; 38 of them actually increased their earnings before charges. Some of the largest railways, such as the Pennsylvania, New York Central, Santa Fe, and Union Pacific retrograded, while small companies like the Norfolk & Western, Reading, Western Maryland, and Virginian, prospered.

On the whole the railroads are not in dire straits, as some alarmist reports recently suggested. Higher freight rates took effect in August and freight revenue, which is 85 per cent of total operating revenues, at once showed signs of improving. If the current recession in certain industries is merely temporary, the railways may soon work back to the level of 1956, which was a fairly good year apart from the July steel strike.

Yours faithfully,

R. BELL

Frognaal, N.W.3

THE SCRAP HEAP

Special Train Services

In the early morning of October 25, the day of the 24-hr. partial railway strike in France, a train from Paris arrived at Angoulême, its normal destination. The driver, who lives at Bordeaux, then, without orders, drove the train on to that town, explaining that he wanted to spend the free day with his family.

Seventy Years Old—and Going Strong

A correspondent who attended the Argentine railway centenary celebrations points out the train exhibited by the General Roca Railway was composed of a British-built locomotive and vehicles all over 70 years old. It consisted of a 2-6-0 tender locomotive built by Beyer, Peacock & Co. Ltd. in 1886, a two-axle luggage and brake van built by the Birmingham Railway Carriage & Wagon Co. Ltd. and supplied in 1887-89, and two three-axle carriages now used as inspection cars constructed by the Metropolitan-Cammell Carriage & Wagon Co. Ltd. at Saltley and supplied in 1884-85.

The First Small Industrial Locomotive

Regarding the Bagnall 1-ft. 8-in. gauge locomotive illustrated in our September 20 issue, a correspondent states that the first narrow-gauge industrial locomotive, *Ada*, built by Bagnall, was built in 1877. It is shown in the accompanying illustration, for which we are indebted to W. G. Bagnall Limited.

Some earlier examples of narrow-gauge engines, our correspondent adds, ran on the 1-ft. 6-in. gauge tramway in the Crewe Works of the L.N.W.R., for which John Ramsbottom built some

four-wheel saddle tank engines in 1862; one of these is preserved at Crewe. A tramway with rather similar small locomotives was laid in the L.Y.R. works at Horwich, and the last surviving engine there was recently withdrawn from service and also preserved.

As to *Ada*, Mr. W. A. Smyth, Managing Director of W. G. Bagnall Limited, informs us that the engine was delivered in September, 1877, to W. Rees. The woodcut appeared as part of a Bagnall advertisement in a mining journal in 1878. The gauge was 1 ft. 10 in. and the cylinders 4 in. by 6 in. There is a tradition that this may well have been the first locomotive built at the Castle Works, Stafford. Earlier locomotives were of standard gauge, and it seems likely that they were built elsewhere and brought to Stafford for cleaning and finishing.

The 0-4-0 engine *Brick*, mentioned in the Scrap Heap of September 20, was built in 1878 for the Beckenham & Penge Brick Works. Mr. Smyth points out that the Belfast owners must have acquired it second-hand in 1887. The engraving reproduced in that issue is only an artist's impression, but it does indicate the type of tanks fitted to early Bagnall engines and referred to in record books as "inverted saddle," that is, combined wing and well tanks. For such a small gauge as 1 ft. 8 in. outside cylinders might have been expected but, as these were only 4 in. dia., they could have been accommodated between the frames.

Early Illuminated Diagram

Professor John Perry described the traction system of himself and Professor Ayrton, in which the conductor was

divided into sections controlled automatically so as to provide a block system and enable trains to run without drivers, if need be (since realised on the Post Office London Railway). A model of this working had been shown at the Royal Institution in 1882 on the occasion of a lecture by Professor Ayrton. It was shown by that system that it was possible to have at an office, whether far from the train or close to it, a map of the line on which a shadow travelled indicating a train, so that it was easy, by studying the positions of the shadows, to tell the positions of the trains.—*Discussion on a paper by Edward Hopkinson on "Electrical Tramways," read before the Institution of Civil Engineers on December 9, 1887, with special reference to the Bessbrook & Newry line in Ireland.*

Siding into Garden

London Transport has just finished a pleasant task at South Kensington. It has transformed a derelict siding at the Underground station into a garden.

The siding was previously used for parking Inner Circle trains. It went out of employment when the District and Metropolitan lines were recently re-tracked.

Now it has been filled in with 400 cu. yd. of ballast and soil, in which evergreens and spring bulbs have been planted.

This is a double improvement. Before the lines were altered, eastward-bound passengers never knew on which platform the next train was due.

Today their minds are at rest, and they can observe the beauties of Nature.—*"Peterborough," in "The Daily Telegraph."*

News Flashes

(See our November 1 issue)

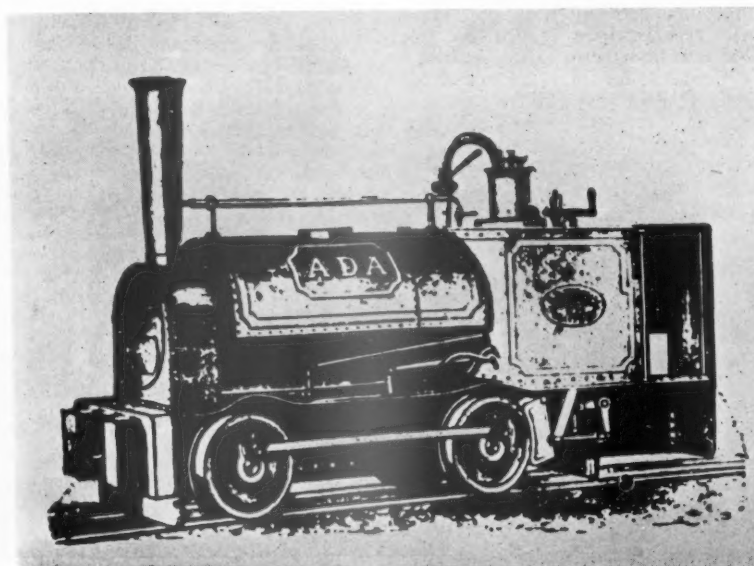
We are in the news again
(A mixed blessing for the train),
For it seems the Treasury is getting tough,
And our longed-for new look date
Looks like running rather late,
If we can't depend upon the quantum suff.

As our Outre-Manche friends say:
"Reculer pour mieux sauter"
Is the reason for the present "Kentish crawl,"
For, according to the plan, it
Won't be long before all Thanet
Is electrified at last, for good and all.

Never mind if wage claims loom;
There's some lifting of the gloom,
For Big Brother says there won't be any war.

Will it matter if perfection
Gets a bit delayed in section
If we scrap that date with 1984?

A.B.



The first narrow-gauge industrial locomotive built by W. G. Bagnall Limited in 1877, and possibly the first engine to be built at the Castle Works, Stafford

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Underground Planned for Bombay

The Bombay Electric Supply & Transport Undertaking is reported to envisage construction of two underground lines, to be completed in six years, and to carry, initially, some 400,000 passengers a year.

RHODESIA

Twin-Car Set Enters Service

A second twin lounge-dining car set *Zambesi* has entered service on the Rhodesia Railways. It is identical with the prototype set *Kafue* put into service in 1956, and described and illustrated in our issue of July 13, 1956. It was built entirely in the Bulawayo workshops of Rhodesia Railways.

SOUTH AFRICA

Rail Passenger Returns

Final returns of passenger traffic on the South African Railways for the year ended March 31, 1957, show an increase in the total number of passenger journeys recorded of 5,630,003 during the financial year 1956-57 in comparison with the preceding financial year. Suburban passenger traffic from October 1, to March 31, totalled 120,095,356 in comparison with 115,527,410 during the corresponding period of the previous year, an increase of 4,567,946. Johannesburg is still forging ahead as the biggest concentration of suburban passenger traffic with a total for the six months, October to March, of 60,902,933 as against 57,054,822 during the corresponding six months of 1955/56. The increase of some 4,000,000 nearly accounts for the increase in respect of all suburban

traffic, all the other centres having recorded an advance of only about 500,000.

Cape Town's return for the last six months of the financial year showed suburban passenger journeys at 41,616,218 as against 40,542,844 during the previous year, an increase of 1,073,374. In Port Elizabeth a decline of some 130,000 was recorded and in Durban a decline of more than 400,000, while there were small increases at the other centres.

Storm Damage in Natal

Severe snowstorms in July halted railway traffic along a large section of the main line in the Drakensburg area of the Natal System. With the assistance of the army, passenger services were resumed after 12 hr. Goods traffic was delayed a little longer, but skeleton services were resumed after 72 hrs. Damage estimated at some £250,000 was caused. The last time the railways had to face a similar emergency was in 1904.

Torrential rains at the end of September caused serious damage in many parts of the Union. Several rivers overflowed, and in Natal the railway bridge over the Tugela River collapsed.

IRAQ

Movement of New Stock to Persia

Recently 32 new second class passenger coaches 86 ft. 7½ in. over buffers and 400 new covered goods wagons, all 4 ft. 8½ in. gauge, were received in Baghdad by rail from Europe via the Turkish State Railways for the Iranian State Railways. As there is no rail connection between Iraq and Persia, these vehicles were loaded on Iraqi State Railways metre gauge vehicles at

Baghdad and sent to the port of Basra. There they were off-loaded on to barges and taken across to the Persian port of Korramshar. At Korramshar they were taken off the barges and handed over to the Iranian State Railways in serviceable condition.

The accompanying illustrations show the method of carrying the standard-gauge stock on the metre-gauge flat wagons.

The passenger coaches were built by Linke-Hofmann-Busch G.m.b.H., of Salzgitter, Germany, and the wagons by Simmering - Graz - Pauker A.G., of Vienna.

CANADA

Locomotive and Wagon Deliveries

During the period September 20 to October 18, 1957, locomotives and wagons delivered to the Canadian Pacific Railway included 169 50-ton covered wagons from the Canadian Car & Foundry Co. Ltd.; two supplementary diesel-electric units, Montreal Locomotive Works Limited; 16 1,750-h.p. main-line shunters, General Motors Diesel Limited; four 660-h.p. yard shunters, Montreal Locomotive Works Limited; 100 75-ton ore wagons, Eastern Car Co. Ltd.; also 83 50-ton covered wagons from the C.P.R. Angus Shops.

VENEZUELA

Private Ownership of Railways

A new law allows railways to be operated by private enterprise under concessions granted by the Government, and under Government supervision. Any company which operates a railway must be registered in Venezuela.



[Photos]

Standard-gauge coaches for Persia in transit over metre-gauge section of Iraqi State Railways



[H. L. W. Stevens]

Method of loading standard-gauge stock on metre-gauge wagons

Progress of the South African Railways

Measures to augment capacity and meet increased traffic demands

By D. H. C. du Plessis
General Manager, South African Railways



The "Blue Train" passing through Wolseley, on the Cape Town to Touws River electrified section. This luxury train runs twice weekly between Cape Town and Johannesburg and Pretoria

THE pressure on the transport system of South Africa, more particularly on the railways, has been relentless during recent years. Ever since the end of the war, mining, industrial, and agricultural development have been in high gear, to which transport had to adjust itself as best it could with the rather limited resources at its disposal. The railways were given very little breathing space as the rate of expansion slowed down only for short and relatively unimportant periods. Progress at headlong speed cannot be indefinitely sustained and an occasional intermission for consolidation is essential; but the over-all picture as far as South Africa is concerned has been one of high-level expansion in many fields. Demands on transport have become progressively more insistent and have called for revolutionary thinking and planning by the transport-provider.

In South Africa, by far the most important transport undertaking is South African Railways, with its associated services, the ports and harbours, an elaborate road transport network, and South African Airways. All these services are nationalised and are co-ordinated in the South African Railway Administration, which has a political head, who is a member of the Union Government. He is advised by a Railways & Harbours Board. The management and direction of the national transport system is carried out by a General Manager under the control of the Minister of Transport.

South Africa, with the mandated territory of South-West Africa, covers

a surface area of 790,656 square miles, with a coast line of nearly 2,000 miles. The country is served by a network of railway lines with a route mileage of 13,430, while the road services are operated over 27,684 route-miles. There are four major ports: Cape Town, Durban, Port Elizabeth, and East London. Walvis Bay serves South-West Africa, while Mossel Bay has become a coastal port of much importance.

I mentioned earlier that planning for the new railway age had to be both

comprehensive and revolutionary. The word "revolutionary" is used in the sense that practically a new railway system had to be created, as the methods and equipment of yesterday could not measure up to the increasing demands generated by the staggering tempo of economic expansion. The resources available to the railways at the end of the war proved entirely inadequate in relation to the new era of mining, industrial, and agricultural prosperity which started in the early postwar period. It thus became necessary to make a critical examination of the whole railway system to determine just what would be required to enable transport to perform its function as the key to and instrument of progress.

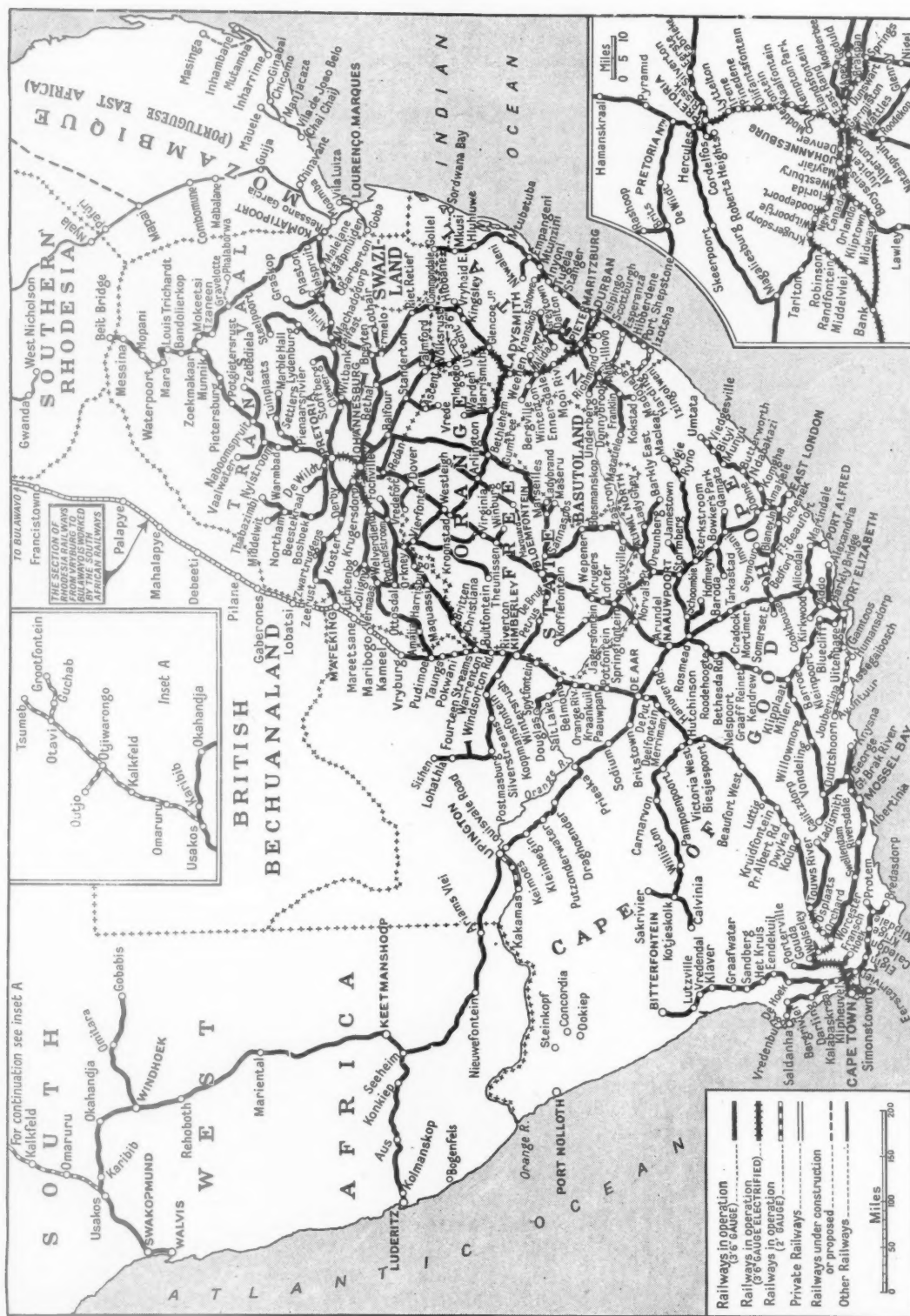
The survey showed that on several important sections, the track was not good enough nor capable of taking sufficiently heavy loads; that many miles of track had to be re-aligned; that important sections had to be doubled; that more trains had to be run and that modern signalling methods had to be extended to remote sections; that new mechanical workshops had to be built and new marshalling and freight yards provided; that some new stations had become essential; and that millions of pounds had to be invested in new locomotives and rolling stock.

£500 Million Programme

Even this brief summary of the improvements will indicate the extent of the task which the Railway Administration had to undertake; but the actual expenditure so far incurred provides an even more graphic picture. During the 11-year period, January 1, 1946, to



Multiple-unit suburban train leaving Cape Town



South African Railways: the inset at bottom right shows the Rand area enlarged

December 31, 1956, total expenditure from capital and betterment funds amounted to £326,581,984. Permanent way and allied works accounted for £151,750,473 of this amount; new freight stock for £70,434,000; steam and electric locomotives for £38,255,630; and new passenger wagons for £15,312,943.

Expenditure approved for works to be started or completed after March 31, 1957, will add another £187,562,616, bringing the total to more than £500 million. This expenditure, however, will be increased still further by the decision to carry out certain other projects such as the electrification of the Tows River-Beaufort section of the main line from Cape Town to Johannesburg and further improvements to the Natal main line both in Natal and in the Transvaal, and also to the section of the Cape main line between Warrenton and De Aar.

Progress of Betterment Programme

Progress with the modernisation and expansion programme has been very satisfactory and many of the projects were completed ahead of schedule. I expect that, by the end of 1959, the railways will be in a position to accept all traffic offered. It is regretted that it has not been possible to do so up to now but it will be appreciated that it takes some time for new works to be brought into effective use. As far as the more important works are concerned, those which will have a positive effect in the carrying capacity of the railways, are nearly all in their final stages and orders for new locomotives and other rolling stock have been stepped up against the day when it will become possible to use railway resources to their maximum advantage.

New Locomotives and Rolling Stock

It is interesting to refer to the orders already placed overseas for new locomotives and rolling stock for delivery in the course of the next few years. The total value of the orders is £33,326,601. Among the more important are 349 motor coaches and electric plain trailers which are costing £7,575,731. The first of the coaches were due for delivery during September although the order was placed nearly three years ago. Recently 234 electric locomotives (class "5E") to the value of £13,463,604 were ordered, also 45 diesel-electric locomotives to the value of £2,879,853, and 60 steam engines (class "GMAM"), (£5,206,039).

Various other items such as refrigerator wagons, fish wagons, air-conditioned restaurant cars, and general-purpose freight wagons, account for the balance of the orders.

It will be readily understood that this new rolling stock will increase the carrying capacity of the railway system very considerably and that it gives continuity to the policy started nearly 12 years ago. During the 11-year period already mentioned, the railway administration was successful in increasing its merchandise carrying-capacity

by 85.7 per cent, its steam tractive effort by 29.4 per cent, and its electric traffic effort by 135.9 per cent.

Work on Track

Generally speaking, the programme to increase the carrying capacity includes large-scale measures to bring relief for congested lines by doubling, regrading, and deviating overburdened sections; re-laying and strengthening track; electrification; improvements to marshalling and freight yards; and improved operating methods.

High on the priority list was the doubling of the Natal main line con-

tending doubling from Vereeniging through to Kroonstad. This work was completed in November of last year; there is now a double line from the Eastern Transvaal coalfields and the Witwatersrand gold-mining area through the Orange Free State as far as Bloemfontein, 334 miles. The total cost of the project amounted to about £7,500,000. The lines serving the Eastern Transvaal coalfields and the O.F.S. main line from the Transvaal is being electrified as far as Kroonstad.

The regrading of the Cape Midland main line between Port Elizabeth and De Aar at a cost of nearly £8,000,000



Aerial view of Durban harbour, showing the new "T" jetty in centre foreground and other rail-served quays

necting Durban with Johannesburg. The line has to cross the formidable Drakensberg range and the old route was not only strictly limited as to capacity, but was also tortuous and difficult, because the original builders avoided tunnelling as far as possible and when they could not go through a mountain, they simply went round it. The total length of track to be doubled, regraded, and re-routed is 121 miles. When completed the whole of the Natal main line from Pietermaritzburg to Ladysmith, 185 miles, will have been doubled and the total distance shortened by 18 miles.

Free State Doubling

The remarkable mining and industrial development of the Western and Southern Transvaal and of the Northern Free State with its gold mines and large oil-from-coal refinery, found the main line from Johannesburg to Vereeniging and from there onwards to Bloemfontein via Kroonstad inadequate, and traffic bottlenecks became common. Work was started some years ago on the doubling of the main line between Kroonstad and Bloemfontein. It has been found necessary to round off this particular improvement phase by ex-

isting making good progress. The improvements made in recent years and projected will enable much heavier train loads to be hauled and will make this line one of the easiest rail-routes from the mountain-rimmed coast-line of South Africa to the interior.

Workshops and Marshalling Yards

The programme of additions and improvements to marshalling, station (including Johannesburg station) and other yards, loops and sidings provides for expenditure amounting to £24 million, of which £14 million has already been spent. Improvements to the marshalling yards at Bellville, Tows River, Klerksdorp, Durban, and Bloemfontein have facilitated handling of traffic. An extensive workshops programme costing about £30,000,000 is also nearing completion and most of the workshops, including the two largest ones, Koedoespoort and Bloemfontein, have reached the production stage.

There has admittedly been criticism of the railways because of the inability to accept all the traffic offering. In general, however, criticism has failed to take into account the magnitude of the programme or the problems produced by many-sided development in the far-



Little Fish River viaduct near Komadagga, on the Cape Midland line

flung parts of the country, necessitating long hauls and a considerable amount of one-way traffic.

Nor is the varied nature of the demands made on railway transport taken into account. Manganese has to be railed from the North-Western Cape to the inland centres for use in the steel mills and to the ports for export; chrome from the Northern Transvaal; coal from Witbank to Cape Town, South-West Africa, and other distant destinations; iron ore from near Kimberley to Vereeniging; millions of bags of maize for export and to local markets; and also a vast assortment of goods and produce.

The following returns are probably the best reply to the question as to how the railways have used and are using their extra resources:—

the last decade has been in connection with housing for its staff. Because of difficulties in the recruitment of staff for certain areas where housing accommodation was difficult, and to make some contribution to the housing shortage, it was decided to build houses in different parts of the country for various grades of staff. This programme is in full swing. By the end of next year, 6,000 houses will have been completed at a total cost of approximately £20 million.

Although these railway houses are departmentally owned, they are for sale to the staff on very reasonable terms while the rent is being kept as low as possible. The availability of housing has had a marked influence on staff morale and has eased the rent burden on the staff to a substantial degree.

—	Total tonnage	Passenger journeys	Train and engine mileage
1945-46	48,205,806	233,924,293	93,766,603
1952-53	69,044,073	268,743,474	115,575,240
1953-54	71,172,652	275,039,245	118,213,122
1954-55	71,873,084	262,385,634	119,190,517
1955-56	74,582,968	262,164,867	122,851,163
1956-57	75,031,624	267,794,870	125,419,772

It is not practicable to cover all the aspects of railway working and I have refrained from discussing our policy as to motive power. The position briefly is that every effort is being made to extend the use of electric traction; to rely on steam where conditions are favourable; and to use diesel traction in those parts of the country which are remote from coal supplies and suffer from periodical water shortages.

Substantial progress has been made with electrification, as already indicated. At the end of last March, the railways had 865 route-miles of electrified track and by the time the present approved programme is completed, another 639 route-miles will have been added.

Housing

In my view, one of the most significant social as well as economic contributions made by the railways during

One last matter on which I want to touch is the provision of cheap railway transport for the Bantu townships in and about the larger cities. Great difficulty has been experienced in providing adequately for this fast-developing traffic; but a programme which provides for the expenditure of nearly £50,000,000 has been approved, while several other projects are still in the planning stage.

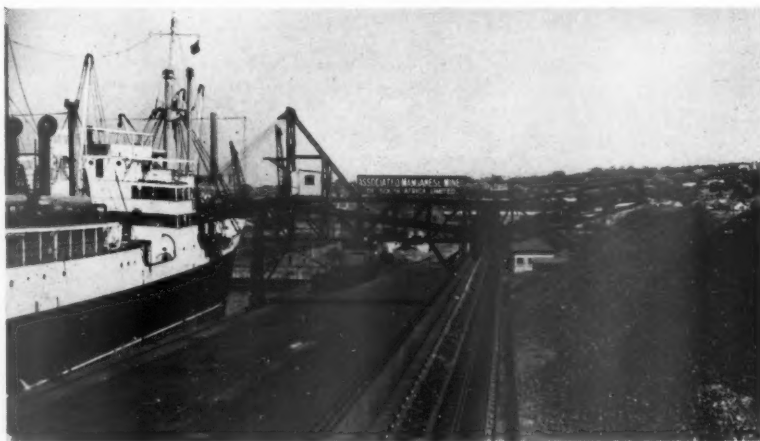
Railway Productivity

The enormous capital which has been and is still being invested in railways in South Africa has understandably produced frequent examinations of railway productivity in relation to capital. It was recently estimated by a university economist that the aggregate output of the railways advanced by 63.5 per cent during the period 1946-47 to 1955-56, or approximately 6 per cent per annum. This calculation places the railways in a comparatively favourable light but it does not fully represent the whole picture.

The productivity of some investments cannot be measured, such as the investment of £20,000,000 in railway housing, and certain other expenditure to which the same comment can be applied is unavoidable in an organisation with as many ramifications as the South African Railways. I feel convinced, however, that the economy of South Africa is being actively promoted by railway participation and large as the investment may be, the nation is drawing substantial and discernible rewards therefrom.

Investment in S.A.R. Services

The investment in all the services under the control of the South African Railway Administration stood at £594,491,000 at the end of last March. Interest-bearing capital amounted to £485,221,000 and the amount payable in interest by the railways for the year ended March 31, 1957, was £17,568,000. Interest charges have always been met and the financial standing of the railways as a business organisation remains sound.



Loading manganese in Durban harbour

Rail-Mounted Viaduct Inspection Unit

Direct access to underside of viaduct arches or high bridges



Inspection unit with upper boom vertical and platform below bridge

THE hydraulically operated rail-mounted viaduct inspection unit developed and put into service by the North Eastern Region of British Railways, is believed to be the first of its kind in the world.

The equipment is mounted on a bogie bolster type wagon 52 ft. over headstocks, 3 ft. 10½ in. rail to floor level and 7 ft. 9 in. wide. It is designed to give direct access to the underside of viaduct arches or high bridges, with a payload on the inspection platform of 600 lb. It is possible to carry out inspections to a depth of 29 ft. below rail level and to travel under the arch a distance of 15 ft. from the outside face.

The unit is in three main parts, these being an A frame with a slewing gantry and an upper and lower boom. In the centre of the A frame there is a gate type hinge mounting with 2½ in. dia. bearings for the slewing gantry which is a triangular cantilever frame construction 12 ft. 6 in. long carrying an operator platform 2 ft. wide on each side of the main frame to give access to the inspection platform and the duplicate control levers. The slewing motions of the gantry are controlled from the gantry platform by a lever operating a valve control to a 5 in. dia. hydraulic ram with a 36 in. stroke.

Hydraulic Ram

The ram has two operating positions and is permanently fixed at one end to the gantry and can be locked at the other end in either of two positions by a removable pin fitted with a safety lock to the channel base frame unit carrying the A frame. The operation of the ram rotates the gantry and booms over

the viaduct or bridge parapet wall, through 90 deg. to either side of the centre line of the wagon. The gantry is designed to clear a parapet wall 4 ft. 6 in. above rail level by a margin of seven in. On the free end of the slewing gantry there is a 2½ in. dia. horizontal shaft for the boom mountings. Two double-acting control valve levers are mounted alongside the slewing control valve lever on the gantry platform to operate the upper and lower motions to each boom. All boom control valves are of the four-way open centre spool type arranged for simultaneous operation, allowing the valves to be used singly or together when simultaneous action of different movements is required.

The upper and lower booms are of box section, formed from light gauge steel pressings with welded bulkheads to give rigidity. The upper boom is 21 ft. centre to centre of pivot points with one end connected to the horizontal shaft on the gantry unit and the other carrying the lower boom which is 17 ft. long. The movements of the upper boom from a horizontal position through 85 deg. in a downward direction are controlled by a 6-in. dia. hydraulic ram with a 36-in. stroke mounted on top of the triangular gantry frame. The movements of the lower boom are controlled by a 6-in. dia. × 36-in. stroke, hydraulic ram mounted underneath the upper boom. When the upper boom is in the near vertical position, down the side of the viaduct, the lower boom can travel 30 deg. above or 60 deg. below the horizontal.

On the free end of the lower boom is mounted the examiners' inspection

platform, 7 ft. long × 2 ft. 10 in. wide, capable of carrying a payload of 600 lb. A simple parallelogram system of tubular levelling rods attached to the platform and running along the booms but separately fixed at the pivot points, ensures that the inspection platform is maintained in the horizontal position.

Remote operating controls are fitted on the inspection platform to allow the occupants to control the movements of the booms within prescribed limits fixed by mechanical stops which bring the control valves into the neutral position, so stopping the flow of oil to the cylinders. A remote control is also fitted on the inspection platform to operate the special type of hydraulically driven bollard winch fitted to the underframe of the rail wagon.

Power Unit

The main power unit is a Petter AVA2 twin-cylinder four-stroke air-cooled diesel engine fitted with electric starting equipment and driving three hydraulic pumps. One of these pumps, delivering 2½ gal. per min. at 1,000 lb. per sq. in., provides power to the rams operating the slewing movements and the booms. The other two pumps, both delivering 5 gal. per min. at 1,200 lb. per sq. in., provide power for the winch. The power unit is fixed to the channel base frame in rear of the A frame mounting and incorporates a diesel fuel tank and hydraulic oil reservoir. The base frame is secured to the wagon frame by 1-in. dia. U bolts. A Hamworthy pressure compensated control valve is fitted in the slewing and boom circuits and is pre-set for the most suitable speed of operation. This regulates the amount of oil passing to the control valves at the free end of the slewing gantry; the surplus oil is by-passed back into the reservoir.

Special efforts have been made to cover the possibility of breakdown and these include the duplication of all hydraulic controls, and the fitting of hydrolocs on both boom circuits so that in the unlikely event of a hydraulic pipe failure the oil flow is locked and the booms can still be controlled. There are two hydrolocs or pilot operated check valves fitted to the upper boom control cylinder and a single hydroloc on the lower boom cylinder. These prevent oil leaving the cylinder until pressure is applied to the opposite end of the cylinder. When locked, the booms cannot move downwards under gravity. In the event of engine failure, a hand control can be fitted to the pump supplying power to the boom rams.

The bank of control valves includes a relief valve which limits the boom circuit pump pressure to 1,000 lb. per sq. in. and also a secondary relief valve set on 250 lb. per sq. in. The secondary valve limits the pressure in the 5-in. dia. slewing cylinder and prevents damage

to the machine due to accidental operation of the slew control valve when the machine is in the travelling position on the wagon. Double levelling rods are fitted, each capable of keeping the inspection platform level.

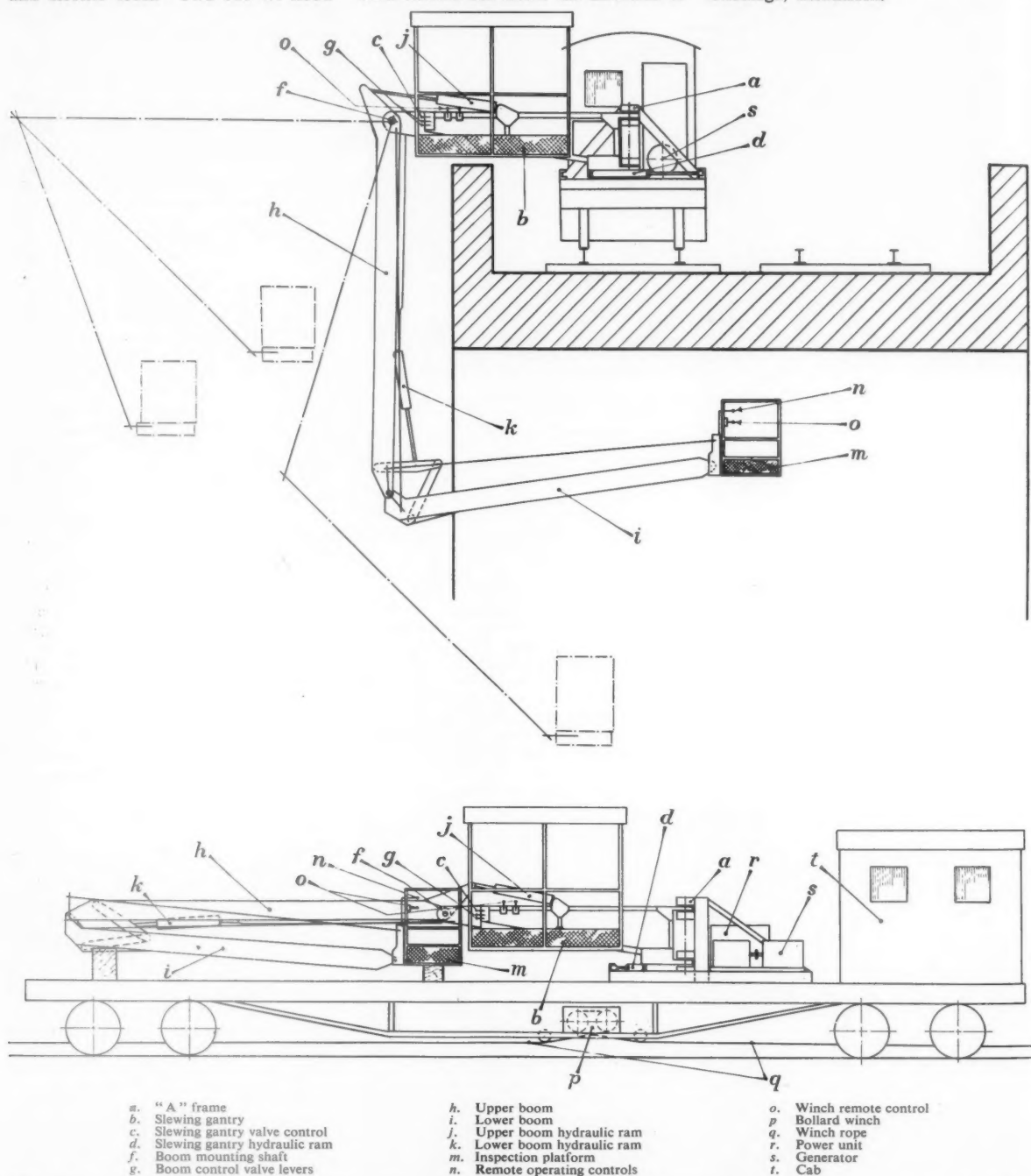
A 3-kW. d.c. generator operating on 110 V. and driven by a Petter AVA1 diesel engine is also fitted to the channel frame in the rear of the A frame. This generator provides power for lighting and electric tools. Two 300-W. flood-

lights are fitted on the inspection platform. Spot-lights of 150 W. are fitted to each end of the rail wagon above headstocks.

Communication between the cab and the men on the inspection platform is provided by two field telephones. A push button is fitted on the inspection platform to operate a 12-V. klaxon on the slewing gantry.

The development of this unit has been carried out under the direction of

Mr. A. Dean, Chief Civil Engineer, North Eastern Region. Construction of the A frame, slewing gantry and the two booms was carried out by Simon Engineering (Midlands) Limited, of Dudley, Worcestershire; the special winch gear and cab were constructed and fitted by the Auto-Mower Engineering Co. Ltd., of Norton St. Philip, near Bath; and the lighting generator was manufactured by Auto Diesels Limited, Uxbridge, Middlesex.



(Above) cross section end elevation through viaduct, showing inspection platform in working position; (below) side elevation of unit with booms stowed

Railcar Diesel Power Equipment Test Bed

Equipment simulating a cycle of working conditions

It has long been the practice of Rolls-Royce Limited to ensure reliability of the power units by intensive research and development making use of test equipment which simulates actual working conditions. This practice has now been extended to cover the Rolls-Royce railcar oil engine and torque converter power unit, by the development of a test bed which simulates the loading of the power unit under most of the conditions likely to be met when the railcar is in operation.

As reported last week, a demonstration was held of the test bed in operation. One notable feature is an automatic cyclic control system which simulates a typical run such as would be experienced by a railcar in line service. This includes simulated gradients, coasting, and level running, which enables all transmission and power components to receive loadings as would be met in practice.

Research Experience

The advantage of this type of equipment, of course, is that it enables the company to obtain a volume of experience which would be extremely difficult to obtain from railway service.

This is especially true in regard to the engine which is at present being tested: this is a pressure-charged version of the eight-cylinder diesel railcar engine which develops some 320 b.h.p. compared with the normally-aspirated output of approximately 240 b.h.p. The maximum simulated gradient at which the test equipment is set, at present, is 1 in 25, but this can be varied as required.

Layout

The test bed, which the company believes to be the first of its kind, embodies a structure to represent a railcar chassis which supports the engine and torque converter and the essential services. Coupled to the output shaft of the torque converter by means of a full-length railcar transmission shaft is a Mk VI Heenan Dynamic dynamometer with a total capacity of 3,000 b.h.p. Three heavy flywheels, driven in series with the dynamometer, produce an inertia equivalent to half that of the power and trailer coach. The power coach of an actual railcar is arranged to have two such engine/converter units. A brake with a high capacity is used so that the energy of the flywheels can be destroyed quickly;

at one point in the operation cycle this energy amounts to 875 b.h.p. The general arrangement of the test equipment can be seen in the accompanying photograph.

The system of controls enables the conditions of railcar work to be simulated on the test bed, actual railcar controls being used as far as possible to allow maximum testing of the equipment. The system, which comprises air and electrical circuits, is arranged for complete manual operation as by a railcar driver for automatic lock-out with manual rack control, and for a fully automatic cycle to reproduce a typical railcar run; the cycle is of 15 minutes duration.

Air Current

The air circuit is unaffected by the three different methods of use. It consists of an engine-driven compressor taking in air through a strainer and anti-freezer and passing it via a cooling pipe to a reservoir, and also direct to an unloader valve isolated from the reservoir by a check valve. The reservoir, which carries a safety valve operating at 110 lb. per sq. in. is connected to the main supply line and also to a governor operating the com-

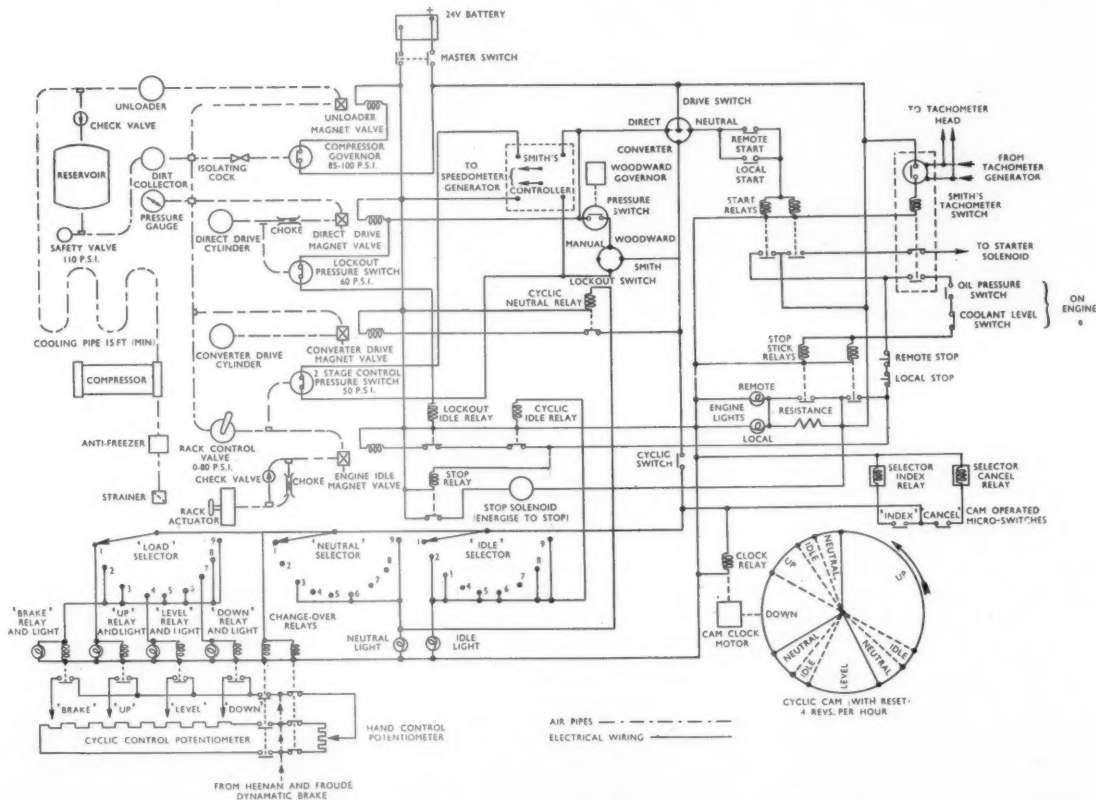


Diagram of air and electric circuits for power equipment test bed

pressor unloader between 100 and 85 lb. per sq. in.

A dirt collector and pressure gauge are provided in the supply line which feeds the converter drive cylinder via a magnetic valve; the direct drive cylinder via a check valve, choke and magnetic valve; and a pressure switch to return the engine from idle when in lock-out. The air supply also feeds the fuel injection pump rack actuator via a valve which controls the rack position, and a check valve and choke to delay any sudden rack opening.

Electric Circuit

The electrical circuit is basically similar in all three cases but the cam section is isolated by the cam switch when in manual or automatic lock-out, and the lock-out section is also isolated for manual drive only by the automatic lock-out switch.

The air and electric circuit arrange-

Automatic lock-out differs from manual operation by the automatic lock-out switch being moved to the lock-out position which makes a circuit to the switch operated by a Woodward governor. This switch closes at 1,270 output shaft r.p.m. to energise a relay which breaks the idle magnetic valve circuit and brings the engine to idle, at the same time operating the direct drive magnetic valve via another relay. The operation of the clutch is delayed by an air choke to ensure that the engine is at idle before direct drive is engaged. This choke also delays the operation of a pressure switch which remakes the idle magnetic valve circuit and brings the engine back to full throttle after a further few seconds delay.

After a drop in output r.p.m. to 1,100 the governor breaks the circuit to the direct drive magnetic valve and the drive immediately returns to "con-

down" and "brake" on an actual rail section and the selection of idle and neutral positions between each stage. The cam carries a series of buttons in positions to give the correct sequence of timing for a 15-min. cycle, and selects the following conditions:—

a.	5 min. 20 sec.	Up
b.	20 sec.	Brake and idle
c.	40 sec.	Brake, idle and neutral
d.	2 min. 30 sec.	Level
e.	20 sec.	Brake and idle
f.	50 sec.	Brake, idle and neutral
g.	2 min. 20 sec.	Down
h.	1 min. 40 sec.	Up
i.	20 sec.	Brake and idle
j.	40 sec.	Brake, idle and neutral

The buttons operate a micro-switch which actuates a three-bank, telephone-type, selector mechanism. One bank is connected to a set of relays and chooses the correct dynamic brake position, at the same time lighting a pilot lamp indicating it. The other banks are connected to relays which are energised according to the timetable and to similar pilot lamps.

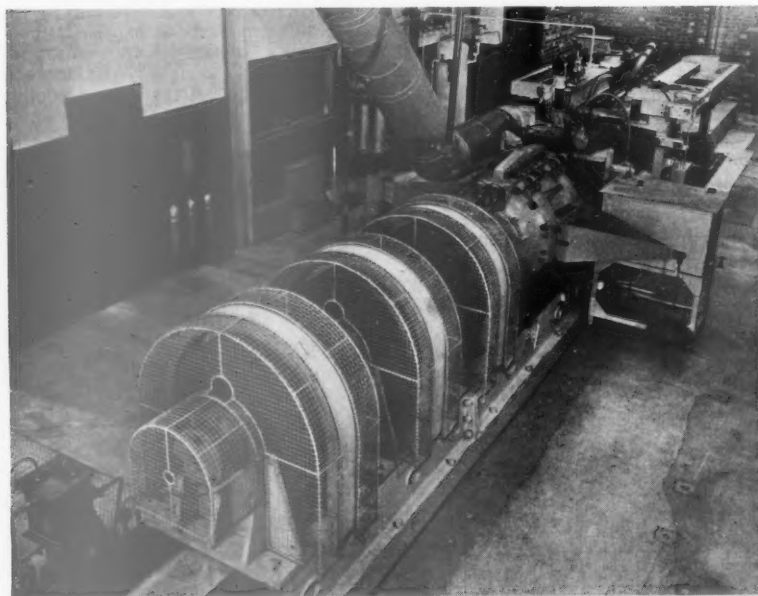
The idle relay breaks the idle magnetic valve circuit bringing the engine to idle, and the "neutral" relay breaks the "converter" circuit, thus putting the torque converter into neutral. A second micro-switch resets the selector mechanism at the end of each cycle. Position markings on the cam indicate exactly where in the cycle the system is at any time. The engine can be stopped manually at any position in the cycle. A reset device on the cam allows it to be indexed back to the initial position for starting.

Controls

The equipment is arranged to be controlled from a suitable sound-proofed room adjoining the test bed. Controls are arranged on a panel adjacent to an observation window. In addition to the usual pressure and temperature gauges, the control panel carries a battery master switch, drive switch (neutral, converter, direct), a lock-out switch (manual, automatic), a cam cut-out switch, a stop cam (showing cycle position), cam indicator lights (idle, neutral, brake, up, level, down), a throttle control valve, and start and stop buttons.

Other gauges are mounted on a panel at the side of the engine for engine oil pressure and converter clutch pressure. The panel also incorporates stop and start buttons and an engine running light. A tachometer connection and relay cuts out the starter at approximately 250 r.p.m. and brings fault switches for low oil pressure and low coolant level into circuit. Any fault then arising will break the stop-switch circuit and stop the engine.

As stated above the Smith's lock-out device is an electrical method of obtaining converter lock-out and lock-in; speed sensitive switches are connected to a standard British Railways railcar speedometer generator. At the axle speeds chosen, these switches, operating in conjunction with relays, automatically produce the change into either direct or hydraulic drive.



Arrangement of test bed, showing three flywheels to produce equivalent inertia

ments are shown in the diagram on page 567. All relays and switches are shown in normally "off" position.

For manual control, current is taken from a 24-V. battery, through a master switch, to the drive switch. The "neutral" position for starting allows current to the starter button. In the "converter" position, the converter drive magnetic valve is energised via a relay and air pressure is allowed to operate the cylinder putting the unit into converter drive.

In "direct" position a similar circuit operates to engage direct drive. Current is also supplied to various safety devices and back to a stop-stick relay circuit, which when momentarily broken, energises the stop solenoid, thus closing the fuel injection pump rack and stopping the engine.

verter." An alternative method of obtaining automatic converter lock-out and lock-in is by the use of a Smith's speed-sensitive device which closes or opens a relay to operate the sequence of events as described above for the Woodward governor.

Automatic Cycle

In the case of cyclic operation, the lock-out circuit is used with the addition of a further system brought into operation by closing the cam switch which, with the drive switch in converter, supplies current to a clock motor and a "telephone" selector. The motor drives a control cam revolving four times per hour.

The purpose of the cam is the operation of the dynamic brake at differing loads corresponding to "up," "level,"

RAILWAY NEWS SECTION

PERSONAL

Mr. Arthur Jessop, M.Inst.T., Chief Assistant (Sales) to Commercial Officer, London Midland Region, British Railways, is shortly to visit Persia to advise the Persian Government on transport. His visit follows the placing of an order with A.C.V. (Sales) Limited for 250 double-deck buses to be supplied to the Teheran Bus Board at a cost of about £2,500,000. Mr. Jessop will also

1946, and Divisional Transportation Superintendent in March, 1948. From July 22, 1952, to February 6, 1953, he acted as Operating Superintendent and was confirmed in that position as from January 1, 1956.

We regret to record the death on November 5 of Mr. G. H. Iles, former General Manager of the Lincolnshire Road Car Co. Ltd. (a member of the Tilling Group).

Railways. In 1936 he was appointed Chief Mechanical Engineer of the Great Western of Brazil Railway at Pernambuco. His services were retained by the Government when the railway was nationalised in 1950 and he has thus completed 21 years of service as Chief Mechanical Engineer on the same railway system. During his tenure of office a considerable programme of locomotive conversion to superheater and oil burning was carried out, carriages and wagons were



Mr. D. de Jonk
Operating Superintendent, Ceylon Government
Railway, who is retiring



Mr. A. J. Lee
Chief Mechanical Engineer, Nordeste
Railway, Brazil, 1936-57

advise on the organisation necessary to secure maximum advantage from the use of this new equipment.

Mr. D. de Jonk, Operating Superintendent, Ceylon Government Railway, who, as recorded in our November 1 issue, has proceeded on retirement leave, completed 37 years of service on October 5 this year. Mr. de Jonk, who was born in 1902, was educated at St. Joseph's College, Colombo, and joined the Ceylon Government Railway in 1919 as a first grade apprentice. He received practical training in the workshops of the Locomotive Department and later served as Foreman-in-Charge of Running Sheds at many centres. In 1931 he underwent a two-year course of training in the United Kingdom on the London & North Eastern Railway. Mr. de Jonk was appointed Acting Assistant Divisional Transportation Superintendent in May, 1940, in which position he was confirmed in October of that year. He became Assistant to the General Manager (Operating) in March,

Mr. A. J. Lee, M.I.Mech.E., M.I.Loco.E., Chief Mechanical Engineer, Rede Ferroviaria do Nordeste, Brazil (formerly the Great Western of Brazil Railway), who, as recorded in our October 25 issue, has retired, began his career in the Marine Oil Engine Department of Plenty & Son Limited after serving his apprenticeship with Richard Garnett & Sons Limited or Linton. He subsequently went to India to become First Assistant to the Works Engineer of the Calcutta Port Commissioners. During the 1914-18 war he was commissioned in the Indian Army Reserve of Officers and, while at the Officers Training School at Bangalore, was selected as an Assistant Controller, Electrical & Mechanical, on the Indian Munitions Board at Calcutta. He subsequently transferred to Bombay as Deputy Controller. Mr. Lee returned to England in 1923 and early the following year became Works Manager at Monte Caseros, North East Argentine Railway. He was subsequently promoted to be Deputy Chief Mechanical Engineer, Entre Rios and North East Argentine

extensively built or rebuilt, and a start made on dieselisation.

British Road Services announces that Mr. F. Lever, M.Inst.T., Divisional Traffic Officer, North Western Division, has been appointed District Manager, Liverpool District. Mr. Lever was employed in the parcels delivery service of Manchester Corporation Transport Department from 1926 to 1939 when he became Depot Superintendent of the Rushden (Northants) Depot of P.X. Limited. In 1942 he joined the Road Haulage Organisation of the Ministry of War Transport, becoming Assistant Divisional Road Haulage Officer for the South Western Division in the following year. His first appointment with British Road Services was that of District Traffic Superintendent, Bristol District, in 1949. In 1952 he became District Manager of the same District. He was appointed Divisional Traffic Officer of the North Western Division, the position he now vacates, in 1956.



Mr. G. D. D. Greig
Appointed District Engineer, Edinburgh,
Scottish Region



The late Mr. Charles Carslake
Signal & Telegraph Engineer (N.E. Area),
L.N.E.R., 1936-46



The late Mr. James Campbell
General Secretary, N.U.R.,
1953-57

Mr. G. D. D. Greig, who, as recorded in our November 8 issue, has been appointed District Engineer, Edinburgh, Scottish Region, British Railways, joined the former Caledonian Railway in 1919 as a pupil. After training in the new works and permanent way departments he became an assistant in the London Midland & Scottish Railway Divisional Engineer's Office at Glasgow. In 1926 he was appointed an assistant in the District Engineer's Office of the London & North Eastern Railway in Glasgow. During the 1939-45 war he was engaged on railway new works necessitated by the construction of Military Port No. 1 at Faslane, and on other new works on the West Highland line. In 1948, Mr. Greig was transferred to Aberdeen as Assistant to the District Engineer, subsequently becoming Assistant District Engineer. For a time in 1948 he was acting District Engineer, Carlisle, and, in 1950, was Chairman of the Committee appointed by the Civil Engineer's Committee to consider re-laying methods and costs on all Regions. In 1951 he was transferred to the Railway Executive as Assistant (Maintenance) to the Chief Officer Engineering (Maintenance). The following year he became District Engineer, Inverness, the position he now vacates.

We regret to record the death on November 9 of Mr. Charles Carslake, M.I.R.S.E., F.P.W.I., who retired from the position of Signal & Telegraph Engineer, North Eastern Area, L.N.E.R., in 1946. Mr. Carslake began his signalling career over 50 years ago with the British Power Railway Signal Co. Ltd. At that time the company was engaged on track-circuit-controlled automatic signal installation at Salisbury, between Woking and Basingstoke, and at Staines. Mr. Carslake was in charge of the electrical side of the work and afterwards went on to the large installation put down by the same company between Manchester and Newton, at Manchester (London Road), and between Manchester and Godley, on the Great Central Railway. In 1906 he was appointed Assistant Signal Superintendent, Great Central Railway and, in 1924, Outdoor Assistant to the Signal Engineer (Southern Area), L.N.E.R., with charge of all signal maintenance and new works on the Great

Central section. In 1926 he became Assistant Signal Engineer (Southern Area). On reorganisation in 1929 he was appointed Assistant Signal & Telegraph Engineer (Southern Area). He was closely concerned with many new railway signalling features on the G.C.R. At Quanton Road, the first long-distance point operation on a main line was installed, and between Marylebone and Neasden the first colour-light signal section of a steam-worked railway was introduced. This work, although carried out by the L.N.E.R., had been planned by the G.C.R. Mr. Carslake was closely concerned with the re-signalling at Kings Cross and at Fenchurch Street, also with the Gidea Park-Shenfield re-signalling schemes. He became Signal & Telegraph Engineer (North Eastern Area), L.N.E.R., in 1936. He was President of the Institution of Railway Signal Engineers in 1932.

We regret to record the deaths of Mr. Tom Hollywood, President, and Mr. James Campbell, General Secretary, of the National Union of Railwaymen. Mr. Hollywood and Mr. Campbell died in hospital in Stalingrad following a motor accident in that city on November 4. Mr. Campbell, who was 62, was elected General Secretary of the N.U.R. in February, 1953. He began his railway career with the former Glasgow & South-Western Railway at Glasgow at the age of 17, and became a member of the Amalgamated Society of Railway Servants within a week or two of entering the service. He was appointed Secretary of the Glasgow No. 7 Branch in 1919, and held that position for 17 years. He was one of the youngest Branch Secretaries in the Union at the time of his appointment. He was an active member of the Glasgow & West of Scotland District Council and was Secretary of that Council for four years. Mr. Campbell was a delegate at several national conferences including the N.U.R. annual general meeting and those of the T.U.C. and Labour Party. He was President of the National Council of Branch Secretaries from 1934 to 1937, and a member of the N.U.R. Executive Committee for the period 1934-38, but did not complete his term of office because of his election as District Organiser in 1936. While stationed at Doncaster he became a member of the board of the Doncaster

Co-Operative Society, and was also Vice President of the Doncaster Divisional Labour Party. In 1946 he was appointed Chief Organiser in Ireland, and, in 1948, was elected Assistant General Secretary of the N.U.R., becoming General Secretary in 1953.

Sir Brian Robertson, Chairman of the British Transport Commission, speaking on the death of Mr. J. Campbell, General Secretary of the National Union of Railwaymen, said:—

"All those who serve on British Railways and knew Jim Campbell will be grieved and shocked at the news of his death, as I am myself. He was a great trade unionist. He had the interests of his members always and sincerely at heart and was a powerful advocate in their cause. But he was always courteous to those who represented management, and prepared to respect their point of view. His death is a real tragedy. Our sympathies go to the National Union of Railwaymen for the loss of their General Secretary and of course to Mrs. Campbell."

He later added:—

"I am also deeply sorry now to learn of the death of the union's President, Mr. Tom Hollywood. I only came into close contact with him this year but was impressed with his firm character and sincerity."

Cremation took place at Golders Green on November 13. The following were among the many transport personalities who attended:—

British Transport Commission

Sir Brian Robertson, Chairman; Sir John Benstead, Deputy Chairman; Sir J. Landale Train, Member; Mr. W. P. Allen, Manpower Adviser; Mr. C. H. Brazier, Assistant Secretary.

Ministry of Labour

Sir Wilfred Neden, Chief Industrial Commissioner.

Ministry of Transport

Mr. R. R. Goodison, Under Secretary.

Soviet Embassy

Mr. J. A. Malik, Ambassador.

American Embassy

Mr. Godson.

Industrial Court

Sir John Forster, President.

National Coal Board

Sir James Bowman, Chairman.

Southern Region, British Railways

Mr. C. P. Hopkins, General Manager (also representing Mr. C. K. Bird, General Manager, Eastern Region; Mr. K. W. C. Grand, General Manager, Western Region; Mr. James Ness, General Manager, Scottish Region, and Mr. H. A. Short, General Manager, North Eastern Region); Mr. H. C. Lang, Regional Establishment & Staff Officer; Mr. G. R. Robinson, Assistant Regional Establishment & Staff Officer.

Eastern Region, British Railways

Mr. C. S. McLeod, Regional Establishment & Staff Officer; Mr. Stanley Wright, Assistant (Wages Staff).

London Midland Region

Mr. David Blee, General Manager; Mr. H. Aildley, Regional Establishment & Staff Officer.

North Eastern Region, British Railways

Mr. P. Stephenson, Regional Establishment & Staff Officer (also representing all North Eastern Region Officers).

Western Region, British Railways

Mr. S. G. Ward, Regional Establishment & Staff Officer; Mr. A. C. Parker, Assistant to Regional Establishment & Staff Officer; Mr. S. G. Hearn, Chief Operating Superintendent.

Scottish Region

Mr. G. W. Stewart, Assistant General Manager; Mr. D. F. Gowen, Regional Establishment & Staff Officer.

Railways Staff Conference

Mr. J. P. Mead, Secretary.

London Transport Executive

Sir John Elliot, Chairman; Mr. A. H. Grainger, Deputy Chairman; Mr. A. Bull, Member; Mr. R. J. Hitchcock, Labour Relations Officer; Mr. C. E. Dunton, Chief Civil Engineer; Mr. A. W. Manser, Chief Mechanical Engineer; Mr. F. G. Maxwell, Operating Manager.

B.T.C. Docks Division

Sir Robert Letch, Chairman; Mr. J. Donovan, Board of Management.

B.T.C. Waterways

Mr. F. J. Norris, Staff & Establishment

Officer; Mr. R. G. Hooton, Assistant to Staff & Establishment Officer.

B.T.C. Hotels & Catering Services

Mr. F. G. Hole, General Manager; Mr. H. G. B. Kelley, Officer for Personnel.

T.U.C. General Council

Sir Thomas Williamson, Mr. W. B. Beard, Mr. J. A. Birch, Mr. W. J. Carron, Mr. H. Douglas, Mr. W. E. Jones, Sir T. O'Brien, Mr. R. Willis, Mr. J. F. McDermott, Mr. W. M. Tallon, Mr. A. L. Hill, Mr. T. Yates, Sir Vincent Tewson, Mr. George Woodcock, Mr. Victor Feather, Mr. J. E. Newton, Mr. G. H. Lowthian.

National Union of Railwaymen

Mr. S. F. Green and Mr. F. B. Bell, Assistant General Secretaries; the Executive Committee of that organisation; Mr. A. Barker, Mr. B. B. Lemmon, Mr. F. Reed, Mr. J. W. Stafford, Mr. A. Stephen, and Mr. G. E. Walton, Finance Committee; Mr. J. Brown, Mr. J. B. Drongeson, Mr. W. Murphy, Mr. J. Nicholson, Mr. W. Ballantine, Mr. A. Shearer, Mr. W. M. Williams, Mr. J. A. Matheson, Mr. J. Shearer, Mr. W. Wilcock, Mr. J. Singleton, Mr. G. W. Brassington, and Mr. F. Donachy, Organisers; Mr. C. R. Sweetingham, Mr. W. G. James, Mr. W. Ridout, Mr. W. Rolland, Mr. O. T. Salman, Mr. E. Vennell, Mr. W. Horne, Mr. M. Anglesea, and Mr. W. McMillan, Headquarters Staff.

Other trade union representatives included Mr. A. Hallworth, Mr. Evans and Mr. Lawrence of the Associated Society of Locomotive Engineers & Firemen; Mr. Sams, Assistant General Secretary, Mr. R. Gunter, President, and Mr. Lingren, Treasurer, Transport Salaried Staffs' Association; Mr. F. Cousins, General Secretary, Transport & General Workers Union; Mr. A. Horner, General Secretary, National Union of Mine Workers; Mr. E. J. Hill, General Secretary, Boilermakers' Society.

Parliamentary Labour Party

Mr. H. Gaitskell, Dr. E. Summerskill, and Mr. T. Fraser.

Australian Railwaymen

Represented by Mr. F. P. Buckley, Agent General, New South Wales Government.

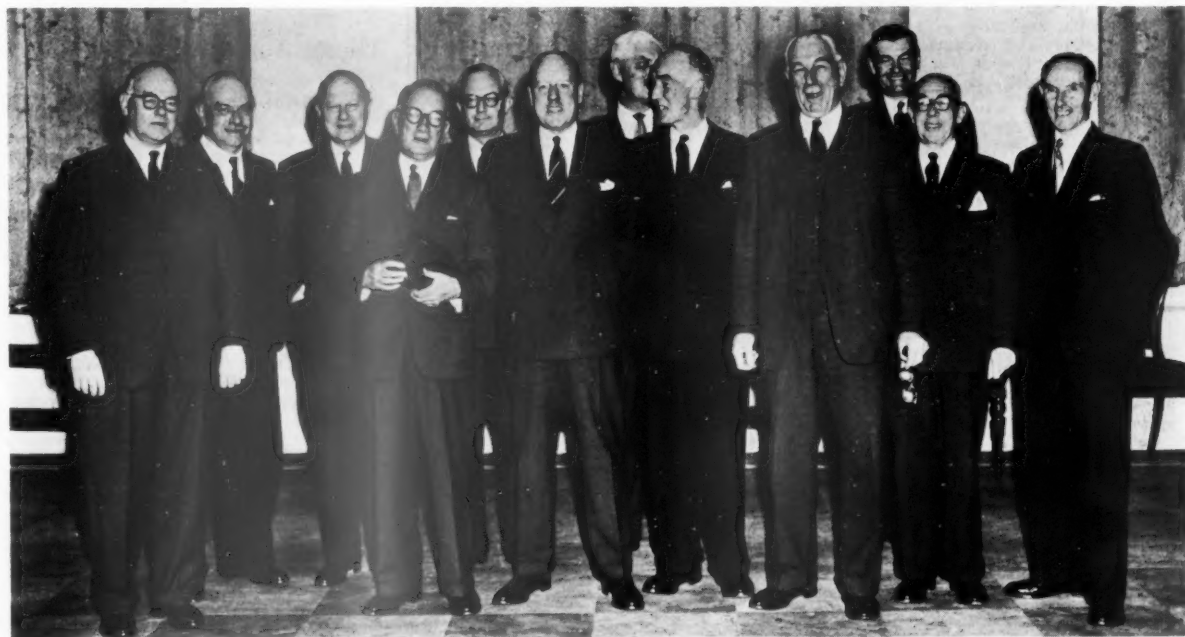
Also Present

Mr. F. Gilbert and Mr. Wilson Cornforth.

Mr. Benjamin R. Beebe has been appointed Manager of the London office of Henry Meadows Limited.

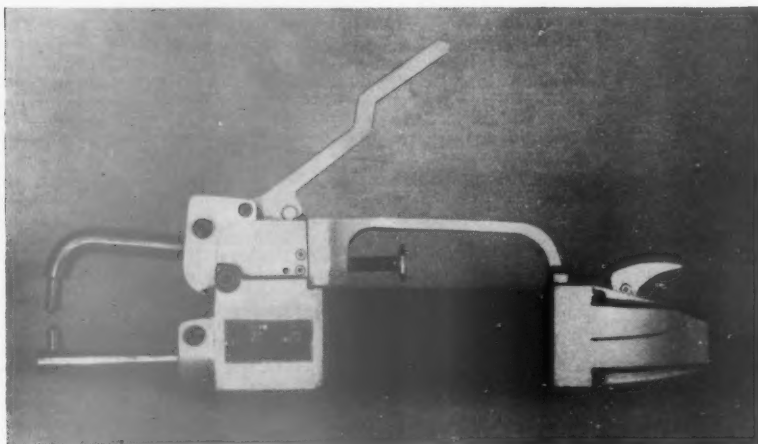
We regret to record the death on November 11, at the age of 76, of Sir William Firth, a leading figure in the British steel industry in the years before the last war. Sir William Firth was Chairman & Managing Director of Richard Thomas & Co. Ltd. from 1931 until 1940, when that combine was amalgamated with Baldwins Limited. Other offices held by him at one time included that of Vice-President of the British Iron & Steel Federation.

To mark his 48 years of service with the Railway Clearing House (of which he had been Secretary since 1947, Mr. T. J. Lynch was presented recently with a pair of binoculars and a cheque by Mr. K. W. C. Grand, Chairman of the Railway Clearing House Committee, on behalf of a large number of subscribers from the British Transport Commission, British Railways, other B.T.C. undertakings, and the Chamber of Shipping of the U.K. The photograph reproduced below shows Mr. Lynch with past and present members of the R.C.H. Committee and its predecessor bodies. Left to right are Messrs. C. P. Hopkins, W. P. Allen, Sir John Elliot, Mr. Lynch, Messrs. J. R. Pike, K. W. C. Grand, W. S. Morgan, David Blee, J. W. Watkins, L. M. Sayers, V. Radford, and S. B. Taylor. Others present at the function included Messrs. D. S. M. Barrie, G. S. M. Birch, E. A. W. Dickson, C. A. Gammon, M. H. B. Gilmour, A. A. Harrison, B. L. Haynes, B. X. Jessop, D. Murray, J. O'Neill, and D. R. Robertson (British Transport Commission); Mr. H. C. Johnson (Eastern Region); Messrs. E. W. Arkle and A. E. C. Dent (London Midland Region); Messrs. W. Marsh, D. McKenna, and H. B. Taylor (Southern Region); Messrs. H. G. Bowles, S. G. Hearn, C. J. Rider, and J. W. J. Webb (Western Region); Mr. L. C. Hawkins (London Transport Executive); Mr. Harold Elliott (British Road Services); Messrs. S. G. Barned, A. Watson, and G. Morton (Chamber of Shipping of the United Kingdom).



Presentation to Mr. T. J. Lynch, retired Secretary of the Railway Clearing House (see also paragraph above)

NEW EQUIPMENT AND PROCESSES



Portable Spotwelder

THE Leopard S70C heavy duty portable spotwelder is capable of continuous duty at average production speeds on widely differing types of sheet metal fabrication and wire mesh work, and is stated to be suitable for use in carriage and wagon construction.

With a power factor close to unity, the mains current draw is below 100 A. The saving in operating costs is said to be substantial when compared with the standard heavy hanging cable type welder which, to give a comparable output current, requires a mains current of 300 to 400 A.

The hand-operated model has a toggle action, pressure mechanism giving a tip pressure of up to 600 lb. with an 8-in. throat depth, and provides a welding rate of 8.5 kVA. For production work, this machine is used with water-cooled arms and usually with an electronic timer

giving weld times of only $1/25$ to $1\frac{1}{2}$ sec.

For heavier work the Leopard S.100 machine has been produced. This is basically similar, both in design and operation, to the S.70 but has a welding rate of 10 kVA. and is capable, especially when fitted with pneumatic operation, of higher production speeds. Both the S.70 and the S.100, have been designed for continuous heavy production work, and with the range of ancillary equipment comprising electronic timer, water-cooled arms, slings, balancer and pneumatic conversion assemblies, are claimed to be capable of the heaviest work demanded of a spotwelder and can be taken to the job and used in places difficult of access to normal welding equipment. The illustration of a smaller model in the range shows the general design appearance of the spotwelding unit.

Price and delivery details of the equipment can be obtained from the manufacturer, Portable Welders Limited, 225, Westminster Bridge Road, London, S.W.1.

Pre-Insulated Terminals

IN the recently-completed power-operated signalling installation at St. Pancras, London Midland Region, A-MP pre-insulated terminals were employed for wiring applications. These terminals, which are closed by a crimping method, have been developed in the U.S.A., over the last few years; they are particularly suitable for situations where vibration problems are inherent, for example, in traction equipment.

In the range of pre-insulated terminals, the plastic insulation is permanently bonded to the terminal; it cannot slip off or be removed. The circumferential insulation support of the terminal allows the wire to be bent in any direction without the wire insulation fraying or the conductor breaking.

Tooling is designed to retain as much as possible of the original thickness of plastic insulation after crimping. The terminals are of one piece construction, made from high-conductivity copper. The terminal barrel is serrated so that under the crimping pressure the strands of wire "flow" into these serrations, making a strong connection. The wire and terminal form a homogeneous mass and the large inside surface contact is stated to assure a connection of maximum conductivity and corrosion resistance. The current carrying capacity of the terminal is equal to that of the largest wire for which the terminal is designed.

A feature of the range is a system of colour coding by size to eliminate errors in installation; tools are also coded with matching colours on handles.

Full details of these terminals are available on application to the manufacturer, Aircraft-Marine Products (Great Britain) Limited, 60, Kingley Street, Regent Street, London, W.1.

Diesel Auto-Truck

A DIESEL-ENGINE version of the manufacturer's range of auto-trucks, which have application, for example, for inter-works transport, is now available. The LD2 truck incorporates the manufacturer's 7-b.h.p. twin-cylinder air-cooled diesel engine. The unit is stated to combine high performance and reliability with low operational costs. Other features are manoeuvrability and reduction of fire hazards.

Tests have shown that it will carry out a full day's work handling loads up to five tons on as little as four pints of fuel oil.

The engine is also available as a simple replacement for existing petrol-engine power units. It is governed at all speeds, and engine cooling, through trunking from a fan on the engine flywheel, is suitable for all climates. The fuel tank of 14-gal. capacity is mounted on the engine.

A single-plate clutch with carbon thrust pad is mounted directly on the engine flywheel and operated by means of a hand lever and flexible cable. Primary drive is by $\frac{1}{2}$ -in. pitch roller chain with tensioning device, thence through a gearbox with two forward speeds and reverse. There is a gear reduction drive to the road wheel which is fitted with a heavy duty pneumatic tyre.



This wheel, mounted on ball bearings running in oil, allows easy servicing. It consists of two pressed-steel flanges bolted together to assist fitting or removing the tyre. Also, the complete wheel and tyre can be removed from the hub in one piece. An internal expanding brake, operated by a ratchet hand lever, is fitted.

All driving controls—clutch, brake and speed control levers—are mounted adjacent to the steering bar to allow the driver full command of the vehicle with least effort.

The auto-truck is manufactured by R. A. Lister & Co. Ltd., Dursley, Glos.

Portable Cylinder Rotator

A PORTABLE rotator, designed for the manual or automatic welding of cylindrical vessels, appears to be of application for the manufacture of boilers, tank wagons and so on.

The FB40, as it is known, has a maximum load capacity of two tons, and will accommodate all diameters up to 9 ft., and lengths from 12 in. to 12 ft.

A feature of the portable fixed-base type of rotator is that it can be moved to any position in the welding shop, and as soon as the current has been connected it is ready for immediate use. With other types of rotators, it is often necessary to spend some time lining up two or more separate sections to obviate the vessels "screwing-off"; with a fixed-base design this problem does not arise.

One axle on which three rollers are mounted is power-driven, and is provided with a 6:1 range of welding speeds. The other axle, which is an idler, can be adjusted to any distance from the power axle, to accommodate the varying diameters. The end rollers are adjustable along the axles to suit varying lengths of the workpieces. The rotator is supplied complete with a pendant-type remote control switch.

The FB40 is manufactured by Courtburn Positioners Limited, Sales Division, Goldington Bury, Bedford.

Industrial Diesel Engine

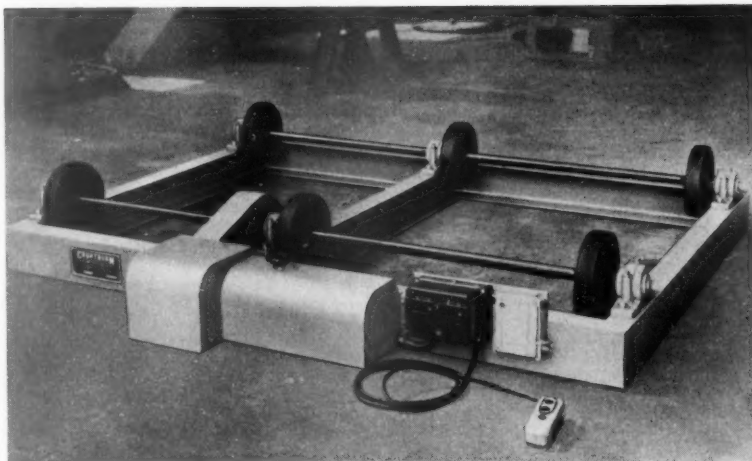
THE six-cylinder four-stroke 6QA vertical diesel engine, which has recently been introduced, is stated to be suitable for all usual industrial power plant applications. A horizontal version is also being developed which will have particular application to rail traction underfloor mounting arrangements.

With pressure charging, the engine range covers powers of 100 to 350 b.h.p. The engine has a bore and stroke of 6½ and 6½ in. respectively, resulting in a 19.6-litre swept volume. The 6QA normally aspirated engine weighs 3,450 lb. (dry).

Connecting rods are alloy steel H-section stampings. The big ends are split at 35 deg. to the horizontal to allow the rods to be drawn through the cylinder bores, and at the same time, provide the maximum bearing area in the rod. The big end bearings are of the thin wall steel strip type lined with copper lead, whilst the small end bush is made of silicon bronze.

The engine crankcase and cylinder unit is a rigid cast-iron structure extending below the crankshaft centre-line. The bearing caps are underslung and the upper portion houses the chrome-hardened wet liners.

Large side cover plates are fitted to facilitate inspection and removal of the



connecting rods and pistons. The crankshaft is an alloy steel stamping with induction hardened pins and journals. The main bearings are of the steel strip copper lead lined type. Steel copper/lead-faced thrust washers locate the crankshaft at the rear main bearing. Two iron cylinder heads are employed, each covering three cylinders. These are fitted with aluminium rocker boxes and covers, the rocker brackets being integral with the rocker box. Renewable valve caps and valve seats are fitted; both valve seats and valves are Stellite faced.

The camshaft, fuel injection pump and oil pump are driven by helical gears at the rear of the engine; 24- or 32-V. electrical equipment can be supplied. Electrical or mechanical devices for stopping the engine in the event of high water temperature or low oil pressure are available; over-speed trip mechanism can also be fitted when required. Approximate overall dimensions of the 6QA are, length 67½ in.; height 53 in.; and width 32½ in.

Further details can be obtained from the manufacturer, W. H. Dorman & Co. Ltd., Stafford.

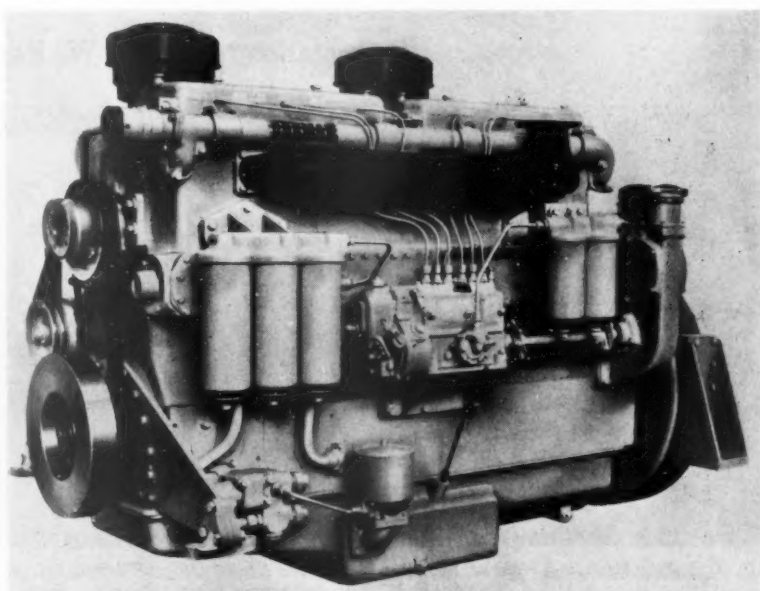
Cleansing Cream

A NUMBER of specialised industrial skin cleansers have been introduced under the name of Kerocleanse.

In these cleansers, virtually non-irritant solvents are rendered harmless by being presented in the form of a suitable oil-in-water emulsion. As a result, the solvent is in contact with the skin only for the time taken to dissolve the contaminating agent. It is then re-emulsified and surrounded by the aqueous phase of the emulsion.

Kerocleanse 21 is claimed to be effective against hectograph carbon stains, duplicating inks, and drawing and printing inks; especially those in a solvent base. Kerocleanse 22 is stated to be effective against epoxide, furane, urea-formaldehyde, resorcinol-formaldehyde, a range of rubber-based adhesives, paints containing alkyd resins, and for removing crude oil and bituminous compounds.

Free trial samples are available to industrial users on application to the manufacturer, Scientific Pharmaceuticals Limited, 1, Eden Street, London, N.W.1.



Institute of Transport Anniversary Luncheon

Lord Mills on the effect of the railway modernisation plan on the national fuel situation

The 38th anniversary luncheon of the Institute of Transport was held in the Connaught Rooms, London, W.C.1, on November 12. Sir Reginald Wilson, President of the Institute, was in the chair.

Sir Reginald Wilson, after proposing the Loyal Toast, introduced the guest of honour, Lord Mills, Minister of Power, and welcomed the other guests. He expressed his pleasure and that of the Institute at the presence of Mr. Harold Watkinson, Minister of Transport & Civil Aviation, and of two former Ministers of Transport, Mr. Herbert Morrison and Mr. John Boyd-Carpenter.

Sir Reginald Wilson then proposed the toast of "Her Majesty's Ministers."

Lord Mills, replying, stated that the amount of fuel consumed by inland and coastal transport in and around the United Kingdom amounted to some 33,000,000 tons of coal a year, or its equivalent. Of this about 14,000,000 tons was used by the railways in the form of coal or electricity; about the same quantity of oil, in terms of coal equivalent was used by road transport; and some 5,000,000 tons of coal equivalent used for air and water transport.

Effects of Railway Electrification

The departure of the steam locomotive, he went on, would mean eventually the saving, in total, of some 12 to 13 million tons a year of the best quality coal. Next to the householder the railways were the biggest consumers of large coal, and because of the increased mechanisation of the mines the proportion of large coal mined every year had been gradually declining. It had been necessary, unfortunately, to find the balance of Britain's requirements of large coal from imports at a considerable cost to the balance of payments.

The supplies of lower grade coals as used by the power stations were increasing. Therefore he welcomed any move by the railways which would lead to a decline in

their demand for large coal, especially when they are prepared to use as an alternative electricity which had been generated from the smaller and lower grade coals of which this country had ample supplies.

The modernisation programme of the railways was matched by equally large, and in the case of electricity much larger, programmes for development in the fuel and power industries. As far as these industries were concerned there would be a reduction in their programme of nearly 10 per cent of what at one time was forecast or planned. This would mean rephrasing in the nuclear power programmes.

Others who had accepted invitations or signified their intention of being present included:

Messrs. H. Aidley, L. B. Alexander, E. W. Arkle, F. P. Arnold, G. J. Aston, J. D. Atkins, Messrs. R. W. Bailey, H. G. Baker, L. H. Balls, M. F. Barnard, R. R. M. Barr, D. S. M. Barrie, C. Barrington, C. D. Bartlett, R. A. Beckett, Sir John Benstead, Sir Cyril Birchall, Messrs. W. E. Blakey, David Blee, S. C. Bond, Colonel A. C. Bonnaffon, Mr. H. J. Bourn,

Sir Archibald Boyd, Messrs. J. A. Boyd-Carpenter, Victor Bridgen, Lt.-Colonel P. M. Brooke-Hitching, Messrs. G. J. Brown, C. T. Brunner, F. Bryan, A. B. Bryant, Anthony Bull, Captain L. G. Burleigh, Mr. J. B. Burnell,

Messrs. L. J. Callaghan, A. F. R. Carling, F. L. Castle, A. L. Castleman, H. R. Caulfield-Giles, R. L. Charlesworth, H. E. Clay, S. A. Claydon, S. T. Clayton, John Cliff, G. Coaker, Norman Cole, S. Cott, Frank Cousins, L. W. Cox, F. W. Crews, Lord Crook, Messrs. R. G. Crowther, M. H. Curtis,

Messrs. Ernest Davies, G. Wynne Davies, N. H. Dean, J. W. Dedman, G. D'Erlanger, E. A. W. Dickson, G. Dodson-Wells, C. E. Dunton, Sir David Eccles, Mr. H. N. Edwards, Sir John Elliot, Mr. H. O. Ernst,

Messrs. R. H. Farmer, F. D. Y. Faulkner, V. D. Fay, A. Forester Fielding, T. Fiske, S. A. Fitch, A. E. Flaxman, D. H. Foulds, Messrs. J. B. Garrett, J. S. Gavin, R. Glen-

dinning, T. E. Goldup, Sir Charles Goodeve, Messrs. A. H. Grainger, P. Gray, P. N. Gray, R. A. Green, A. G. Griffiths, J. R. Grimdsell, R. G. Grout, Mr. R. J. Gunter,

Messrs. R. H. Hacker, A. W. Hallpike, C. M. Hannover, B. H. Harbour, F. D. M. Harding, J. L. Harrington, A. A. Harrison, W. Harris-Burland, C. F. E. Harvey, R. J. Harvey, S. C. Harvey, E. Havers, L. C. Hawkins, S. G. Hearn, M. Holmes, C. P. Hopkins, E. F. Horobin, E. S. Hunt, H. F. Hutchison, Messrs. L. W. Ibbotson, A. J. im Obersteg, W. L. Ives, T. E. Jackson, Sir Gilmour Jenkins, Messrs. B. X. Jessop, H. C. Johnson, N. G. A. Johnson, S. Kennedy, C. F. Klapper,

Messrs. D. R. Lamb, T. Lancaster, H. C. Lang, Lord Latham, Messrs. R. A. Long, E. P. J. Luch,

Messrs. W. H. Maass, D. McKenna, G. MacLean, Brigadier-General Sir H. Osborne Mance, Messrs. A. W. Manser, A. E. Marriot, A. G. Marsden, E. G. Marsden, P. G. Masefield, W. H. F. Mepsted, L. A. Metcalf, T. C. B. Miller, H. W. Mills, R. Morton Mitchell, W. L. Morgan, E. J. Morris, Herbert Morrison, D. Murray,

Messrs. Airey Neave, G. K. Nield, G. R. H. Nugent, E. C. Ottaway,

Messrs. H. F. Pallant, S. E. Parkhouse, A. H. Passey, J. L. Pearmain, F. E. Phasey, C. H. S. Pickett, A. C. B. Pickford, G. J. Ponsonby, H. D. Poole, C. W. Powell, J. Powell, T. G. Pruett, Colonel J. F. E. Pye,

Lt.-Colonel A. W. Reed, Messrs. C. W. Reeves, F. J. Reynolds, B. A. Ridley, R. M. Robbins, S. C. Robbins, J. E. M. Roberts, W. N. Roberts, Sir Brian Robertson, Messrs. J. C. Rogers, T. W. Royle, Lt.-Colonel H. Rudgard, Lord Rusholme, Major-General G. N. Russell,

Messrs. H. F. Sanderson, L. M. Sayers, R. Semple, B. Seymour, A. Shoemack, J. McN. Sidey, C. Owen Silvers, G. F. Sinclair, R. E. Sinfield, H. W. Smail, O. R. Smart, H. H. Starr, F. R. Stockdill, G. R. Strauss, R. F. J. Surry,

Messrs. N. S. Taylor, S. B. Taylor, R. B. Temple, W. G. Thorpe, Colonel W. L. Topham, Messrs. H. C. Tree, H. N. Tuff,

Mr. A. F. Walton, Major-General L. Wansbrough-Jones, Messrs. G. Warrington, Colonel J. W. Watkins, Messrs. E. Watts, Alex. J. Webb, H. A. A. White, E. G. Whitaker, A. J. White, P. A. White, A. Whitfield, E. R. Williams, Lord Williams, Messrs. T. Robert Williams, J. L. Willoughby, A. J. Wright.

Presentation to Mr. E. W. Rostern



Mr. J. R. Pike (standing, right centre), President of the Senior Officers' Mess, British Transport Commission, making a presentation to Mr. E. W. Rostern, retired Chief Officer for Special Duties, B.T.C.

Mobil Oil Co. Ltd. Technical Services Laboratory Completed

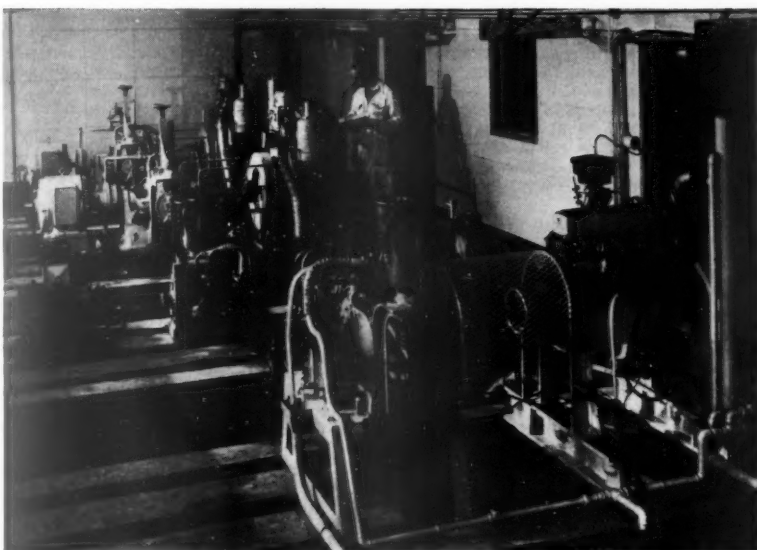
The Mobil Oil Co. Ltd. new technical services laboratory at Coryton, Essex, has now been completed. The premises have been designed and constructed to enable laboratory work to be expanded and more closely co-ordinated. This work covers product development, quality control and technical service to marketers, distributors, and manufacturers. The laboratory was previously located at Wandsworth, London, with a section of the staff in temporary premises at Coryton.

The work of the laboratory includes the adaptation and reformulation of new and existing products introduced to this country, re-adapting the manufacturing specifications according to the properties of the raw materials of the contemporary supply sources.

To maintain the quality of the company's products, the department, in co-operation with the other groups, establishes suitable manufacturing specifications for the refinery and the two manufacturing and blending works at Birkenhead and Wandsworth. The laboratories at the refinery and works ensure that these specifications are met, but samples of all industrial and automotive lubricants, fuels and greases are sent from distribution and storage terminals and service stations throughout the country to ensure maintenance of quality up to the point of consumption; this necessitates the testing of all these samples. Another aspect of the quality control programme is the continuous assessment of marketing requirements by means of engine and rig testing.

The laboratory also provides a service to assist the company marketers and distributing companies in solving any field problems; in addition, approximately 200 samples a week are received from the field for routine testing. These samples are drawn from ships, industrial plant, and automotive equipment all over the country, and sometimes abroad.

Further technical service is also given to Coryton Refinery, much of this work being the assessment of the effect of process variables on product quality by means of semi-pilot plant scale equipment.



Part of the engine testing beds where engines are operated to evaluate the performance of lubricants and fuels

Further service is provided by the development of analytical techniques to speed up manufacturing control testing.

Wiring Train in the London Midland Region

A special wiring train commenced work on November 4 between Wilmslow and Mauldeth Road, in the London Midland Region of British Railways. It has a staff of 20 and is being used for the erection of overhead wires for the Euston-Manchester-Liverpool electrification scheme.

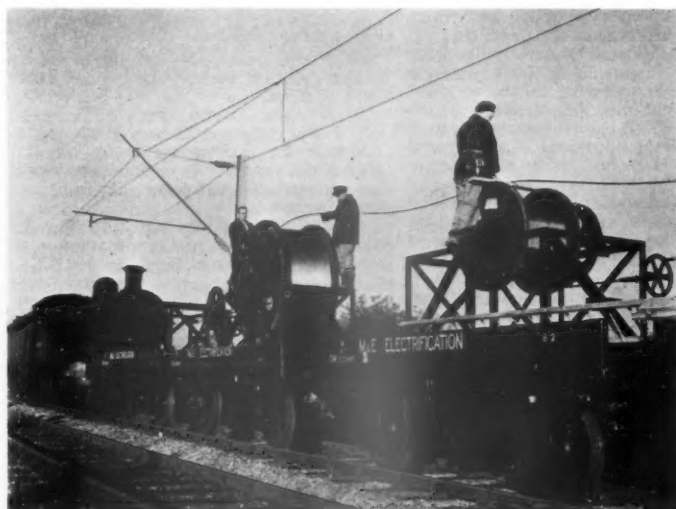
The wiring train will work in two sections, the first fitting insulators, cantilever arms, and tie rods to the steel masts; the second attaching the overhead electric conductor wires to the cantilever arms.

This is followed by inspection carried out at a later date by wagons fitted with mock overhead current collecting gear of the pantograph type on their roofs.

The first section of the wiring train consists of a locomotive, insulator coach, a cantilever and assembly coach, and a fittings coach. The train stops at each mast to fit cantilever arms which project upwards over the track at an angle of some 45 deg. The arms are supported by tie rods projecting horizontally from the masts. The whole cantilever arm and tie rod assembly is insulated from the mast by large ceramic insulators.

Flat-topped Coaches

The second section of the wiring train also has its own locomotive. It is equipped with two or three wagons containing drums of the cadmium copper catenary and conductor wire and four flat-topped coaches



Wiring train at work between Wilmslow and Mauldeth Road, London Midland Region



Men at work on the flat tops of the coaches forming the first section of the train

which form high platforms for the erecting crews to work from. These coaches are the ladder tackle and generator coach, the office and mess coach, the fittings coach, and the workshop coach. The generator coach provides electricity for the lamps used in tunnels and on night work and also for small power tools. The roofs of the first and last of the coaches are fitted with rollers to allow the wire to move over them easily.

The experience gained in this work will assist in planning the future employment of the train. Already two developments to speed up wiring work are planned and will be incorporated in the wiring train after testing. They are a special wire-tensioning vehicle and a wire-placing unit. The wire tensioner will deliver the wire to the workmen with just the correct amount of "pull" on it instead of at a nominal pull direct from the drum. The wire placing unit will allow easy control of the side-to-side "stagger" imparted to the wire as it is erected. If the overhead wire were erected above the track in a straight line instead of a modified zig-zag it would quickly wear a trough at one point in the carbon face of the pantograph.

Proving Ground

This section of main line, between Wilmslow and Mauldeth Road, which will be used as a proving ground for the new system while the rest of the work is proceeding, has already had much preliminary work carried out on it. Bridges have been raised and the track lowered in places to give clearance for the overhead wires and the work of erecting steel masts to support the wires is more than half completed. The overhead wires will be energised for experimental purposes by May, 1958.

The main contractor for the overhead equipment on this section of line is British Insulated Callender's Construction Co. Ltd. which is supplying much of the material used and is carrying out its erection.

Parliamentary Notes

Arbitration on Wages

The Prime Minister, in the debate on the Address in the House of Commons on November 5, said the Government had no intention of interfering with the normal processes of arbitration. "It certainly cannot be regarded, however, as interference," he explained, "to ask those concerned in arbitration questions to have the country's general economic circumstances fully in mind. Indeed, not to do so openly and frankly would be failing in our duty. We have a further duty. We must make it clear that finance cannot automatically be forthcoming to meet additional outgoings to meet any arrangements which may be reached by merely creating additional money to meet additional outgoings. Of course, this does not mean that there cannot be changes in conditions or improvements in wages. What it does mean is that such increases can come either out of savings or out of greater efficiency, or out of new plant coming into action, or out of rationalisation and all the rest; that is to say, out of greater productivity, or, alternatively, out of an actual increase in production."

Mr. J. L. Callaghan (Cardiff S.E.—Lab.) said in the resumed debate on November 6 that the Government was going to make more anomalies than it could possibly solve. To the railwaymen's claim it would say "No." It said, "We are not going to finance any wage

increases. If they go to arbitration they can get them, but it is for the B.T.C. to decide whether it will implement the awards. We are not going to give any money for them." On the other hand, it said that with the employees in the electricity and gas industries it was, of course, plain sailing, and if they could make out a case it would be conceded.

Railway Capital Expenditure

Lord Pethick-Lawrence, in the debate on the Address in the House of Lords on November 6, said he noticed that another step that had been taken by the Government in combating the financial crisis of the £ was to cut down the programme of development and capital expenditure of the nationalised industries. How far that had been cut it was not very easy to see, although he had read interesting accounts of it. So far as he could see, for the most part it affected subsequent years, and he had always rather a suspicion of figures relating to a time several years ahead, because he knew perfectly well that an intervening Government, the same Government, or a Government of a different political complexion, might easily reverse the plan that had been proposed. But it was proposed to cut down the expenditure of such industries as coalmining (he thought coalmining would be the least affected), railways, electricity, gas, nuclear activities, and so on. It was only a few months since the Government delivered fully mature thought as to precisely what these industries would spend in the next few years. It seemed to him in keeping with the policy of the Government to change carefully decided policy at very short notice, having put out with deliberation what it was intended to do. That was one of his main criticisms of the whole Government policy with regard to inflation.

Lord Latham said the nationalised industries were of the very foundation of our economy, but they were to have their capital expenditure restricted. The railways had been starved of development and modernisation for many years—before the war because of the inability of their then private owners to find the money, and since the war because the railways had always had to take something of a back seat when questions of priority arose in regard to capital expenditure. The nationalised industries were in need of development and expenditure.

Instead, as far as one could judge from the pronouncements made by representatives of the Government, the nationalised industries might have their capital expenditure curtailed. It was noteworthy, also, that whilst the proposal for physical controls had been rejected by the Government (in respect, for example, of building), nevertheless it was a fact that physical controls, or ministerial controls, were to be applied to the nationalised industries and to the expenditure of local government.

Lord Mancroft, Minister without Portfolio, said: Lord Latham implied that the nationalised industries in general, and British Railways in particular, would support a reduction in their investment programmes. . . . I should like to assure the noble Lord that, whilst the Government intends to hold the total of public sector investment in each of the next two years at this year's level, the programmes of the nationalised industries will, within the total, show a substantial increase in each of these years. In particular, a significant increase in expenditure by the B.T.C. is being allowed for.

Questions in Parliament

B.T.C. Purchasing Procedure

Mr. D. Jones (The Hartlepoons—Lab.) asked the Minister of Transport & Civil Aviation on October 30 whether, in view of the conflict of view between Sir Harold Howitt as indicated in his report and those of Mr. E. L. Gethin, relative to the recommendations indicated in the Blue report, and the B.T.C. directive of August 13, 1957, he would arrange to have a copy of the Blue report and the directive of August 13, 1957, placed in the Library of the House of Commons, to enable Members to judge for themselves on these documents.

Mr. Watkinson: Sir Harold Howitt's report itself gives all the relevant material from Commission documents necessary to his findings.

Later, he stated that he thought it quite wrong that the B.T.C., which was trying to run itself as a commercial concern—as it was the Government wish it should—should think that its internal documents could at any time be produced and laid for public examination. It was done once a year when the Commission accounts were thoroughly investigated. Otherwise, he thought it should be left alone to get on with the job.

Modernisation Programme

Mr. D. Jones (The Hartlepoons—Lab.) asked the Minister of Transport & Civil Aviation on October 30 whether he was now in a position to give the result of the B.T.C. reassessment of the cost of the modernisation programme, after taking into account the changes in prices and all other factors which change the scope of the programme.

Mr. Harold Watkinson: The B.T.C. estimates the cost of the work, covered by the plan prepared in 1954, at £1,500 million. This revision takes full account of changes in price levels and of major technical decisions reached since the plan was first published, as well as the reassessment of costs which detailed planning has made possible.

Mr. Jones asked whether Mr. Watkinson could say what part of the £170 million, which the Chancellor had announced the day before was to be devoted to the modernisation programme, was to be used for ordinary replacements, on which the railways spent more than £100 million the year before.

Mr. Watkinson said that if an answer to that question were required, it had better be put down.

Mr. Ernest Davies (Enfield E.—Lab.) asked what changes it was proposed to make in the railway modernisation programme in view of the reduction in capital investment; and what delay in its fulfilment would result.

Mr. Watkinson: It will not now be possible to accelerate the programme in the next two years as much as the B.T.C. had planned, but because the programme is ahead of schedule the level of investment will not fall below that forecast in the Command Paper—"Proposals for the Railways"—and there will be no delay in the fulfilment of the programme as a whole.

Mr. Davies: Is it not a fact that the actual amount which will now be spent, and the actual authorisations made in the next few years, will be less than had been planned for, and does that not mean that the Commission will be in serious difficulties in regard to revenue as a result?

Mr. Watkinson: The Chancellor of the Exchequer gave the figures yesterday, which

I entirely accept. They are very large sums of money. I expect the Commission to get the best value for them, and that is its job.

Mr. G. R. Strauss (Vauxhall—Lab.): The Chancellor of the Exchequer said he was going to cut payments to the B.T.C. services to £170 million a year. The proposals in the White Paper for railway modernisation amounted to £135 m. and £140 m. for the next two years. Can the Minister somehow reconcile those figures so that we may be assured that the modernisation programme will not be affected.

Mr. Watkinson said the programme was well ahead of schedule. Therefore, the payments would be higher than were originally anticipated when the plan was made. These were therefore allowed for, and that was the reason for the higher figure. The higher figure really showed the amount of acceleration which the Commission had been able to achieve, and which was very necessary.

B.T.C. Accounts

In reply to a further question by Mr. Davies, Mr. Watkinson stated that the B.T.C. had informed him that it could distribute the amount of capital investment now approved so that no revision of the estimates in the Command Paper of its financial position was called for. This would not affect the date by which it was estimated that the Commission would balance its accounts. Deficits would be met in accordance with the provisions of the Transport (Railway Finances) Act, 1957.

Staff and Labour Matters

Pay of Railway Salaried Staff

The T.S.S.A. has submitted a claim to the B.T.C. for improved rates of pay for salaried staff on British Railways, with the object of maintaining the purchasing power of salaries.

The Association has been pressing the Commission to agree to a periodical review of salaries, but the latter has informed the Association that it cannot proceed with such a review, as the other two unions, the N.U.R. and the A.S.L.E.F., which are parties to the machinery of negotiation for railway staff, are not prepared to participate.

As previously reported, both the N.U.R. and the A.S.L.E.F. have submitted applications to the Commission for improved rates of pay for their members.

QUEENSWAY STATION LIFTS, L.T.E.—The second of the two new high-speed lifts which have been installed at the Queensway, Central Line, station of London Transport was brought into use on November 3. The new lifts are fully-automatic and travel at 500 ft. per min., almost three times faster than the old lifts, of which there were three, all of which had been in service since the line opened in 1900. The task of installing the new lifts was particularly difficult because special engineering methods were necessary to keep a lift service in operation during modernisation. The work was further complicated because the lifts all operated in the same shaft, and little work could be done at night because of the need to avoid disturbing people living in the flats above the station. The first of the new lifts was commissioned in April of last year.

Contracts and Tenders

Diesel-hydraulic locomotives for the Swedish State Railways

Maschinenbau Kiel A.G. (MaK) has received a further order from the Swedish State Railways for 20 rigid-frame four axle 56-ton diesel-hydraulic locomotives of 800 b.h.p., each with an MaK eight-cylinder engine and Voith transmission.

British Railways, North Eastern Region, have placed the following contracts:—

David Thomson Electrical Engineers Limited, Luton: yard lighting, motive power depot, Sowerby Bridge

Wellerman Bros. Ltd., Sheffield: reconstruction and widening of substructure, Wallsend bridge No. 11

S. Butler & Co. Ltd., Stanningley, Leeds: reconstruction and widening of superstructure, Wallsend bridge No. 11

Ransomes & Rapier Limited, Ipswich: 10 7½-ton diesel-electric road mobile non-slewing cranes.

The Special Register Information Service, Export Services Branch, Board of Trade, has received calls for tenders as follows:—

From Thailand:

12 four-wheeled refrigerator wagons to be built and supplied complete in all respects in accordance with the terms of the specifications and the general specification for the construction and supply of four-wheel refrigerator wagons. Each to be constructed for the low-temperature transportation of frozen meat and fish, fresh meat and fish, or fresh vegetable and fruit. To be built and supplied complete in all respects with the underframe and appurtenances, body, coupling device, draft gear, braking device and in accordance with the description and drawings. The general arrangement and layout of the complete refrigerator wagon must be submitted with the tender. A deposit of Baht 50,000,000 is required. The issuing authority is the Railways Organisation of Thailand and the tender number is Sor 2/05758. Bids should be sent to the Railways Organisation of Thailand, Bangkok. The closing date is January 14, 1958. The Board of Trade reference is ESB/26884/57.

From Formosa:

20 M/T T-rails, standard light, of 30 lb. per yd., 30 ft. lengths, tensile strength 55 kg./sq. mm. or over

15 M/T steel pipe, seamless black, I.D. 4 in. plain end, O.D. 4.5 in., wall thickness, 0.176 in., 18 ft. lengths

20 M/T steel pipe, seamless black, I.D. 3 in. plain end, O.D. 3.5 in., wall thickness 0.176 in., 18 ft. lengths

15 M/T steel plates, ½ in. thick, 5 ft. × 10 ft. for the box of coal tubs, tensile strength 30 kg./sq. mm. or over

10 M/T steel channel, 100 mm. × 50 mm., web thickness 5 mm., length 10 m., tensile strength 50 kg./sq. mm. or over, for use in coal tub frames.

The issuing authority and address to which bids should be sent is the Central Trust of China, Purchasing Department, 68, Yen Ping Nan Road, Taipei, Taiwan, Formosa. The tender No. is 84-21-007-9-70463. The closing date is December 9, 1957. The Board of Trade reference is ESB/26663/57/I.C.A.

From South Africa:

89 items of superheater elements to Specification CME 18/1952, and drawing

L-9500. The issuing authority is the Stores Department, South African Railways. Bids, in sealed envelopes, endorsed "Tender No. H.6506; Superheater Elements" should be addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg. The closing date is December 13, 1957. The Board of Trade reference is ESB/26556/57.

From Spain:

Railway gauge rectifying equipment. The issuing authority and address to which bids should be sent is Sr. Director de la Red Nacional de los Ferrocarriles Españoles, Ayuda Económica-San Cosme, 1, Madrid, Spain. The tender No. is 52-33-177-6-70032. The closing date is December 9, 1957. The Board of Trade reference is ESB/27154/57/ICA.

From India:

Crossing acute 1 in 12 and pair of switches 21 ft. overriding BG 90 lb.

Crossing acute 1 in 8½ and pair of switches 15 ft. 6 in. overriding B.G. 90 lb.

Diamond crossings 90 R with single slip TA—5077

Diamond crossings 90 R with double slips TA—5078

Diamond crossings with single slips 60 R TA 5130

Diamond crossings with double slips 60 R TA 5131

Crossings 1 in 12 90 R to TA 5039 and pair of switches 21 ft. 90 R to TA 5045

Crossings 1 in 8½ 90 R to TA 5042 and pair of switches 15 ft. 6 in. 90 R to TA—5063

Crossings 1 in 12 60 R to TA 5047 and pair of switches 18 ft. 60 R to TA 5053

Crossings 1 in 8½ in. 60 R to TA 5050 and pair of switches 13 ft. 6 in. 60 R to TA 5122

Crossings acute complete with 1-12 MG 50 R TA 5124 and pair of switches complete 18 ft. MG 50 R to TA 5125

Crossings acute complete 1-8½ M.G. 50 R to TA 5127 and pair of switches complete 13 ft. 6 in. MG 50 R to TA—5128.

About 5,000 sets of each item are required. No guarantee of quantity against each item separately or for total quantity collectively can be given. The issuing authority and tender number is the Director General of Supplies and Disposals. The tender No. is WP-1/P&C/Misc/1/59-60. Bids should be sent to the Director General of Supplies and Disposals, Shahjahan Road, New Delhi. The closing date is November 21, 1957. The Board of Trade reference is ESB/26672/57.

Further details regarding the above tenders, together with photo-copies of tender documents, can be obtained from the Branch (Lacn House, Theobalds Road, W.C.1).

The Director General of the India Store Department, Government Building, Bromyard Avenue, Acton, London, W.3, invites tenders for the supply of rolled tyres for W.G. locomotives and tenders. (See Official Notices on page 580.)

Notes and News

Refugees Tied under Wagon.—It is reported from Graz, Austria, that three young Yugoslav refugees, including a girl, arrived there on November 11, having crossed the frontier into Austria by tying themselves under a railway wagon with braces and belts.

German Railway Ferry Aground.—The German Federal Railway ferry *Deutschland* ran aground at the entrance to Grossenrode harbour on the evening of November 10. She had the coaches of a Copenhagen-Paris train on board and some 50 passengers. She was refloated by tugs the next night.

Brush Group Sales Drive in Middle East.—The Brush Group is launching a drive to further the sale of British products in the Middle East. The Group is flying its factory managing directors and Middle East representatives to a four-day conference opening in Beirut on November 26 which will be attended by Brush agents from 17 countries. The party will be led by the Managing Director of the Brush Group, Mr. Ian Morrow, and Mr. Michael Clear, the Export Director. The company's initiative in calling the conference has been hailed by the Arab world as the first occasion in recent years that a British firm has signified its faith in the future of the Middle East. The conference will close with a banquet attended by the President of the Lebanon and the British Ambassador. The Chairman of the group, Mr. Geoffrey Eley, who will also attend the conference, has received a message of goodwill from Mr. J. K. Vaughan-Morgan, Minister of State, Board of Trade.

Passengers by Diesel Train.—The London Midland Region of British Railways states that more than 1,250,000 passengers a month are now travelling by its diesel

lightweight train services. This is 371,000 more passengers a month than were carried by these services in 1956, when some of the routes concerned were still steam-operated. Even where diesel services have been in operation for more than a year they are still attracting additional traffic.

East Coast Passenger Services.—The managements of the Eastern, North Eastern, and Scottish Regions of British Railways now have a clear picture of the requirements of the majority of passengers using the East Coast route between London and Scotland. The customer survey undertaken during the week ending September 22 was well received by some 19,000 passengers, and about 228,000 replies were received to specific questions. These replies are now being analysed and will be helpful in future planning over this route.

Canadian Trade Mission to Visit Britain.

—A Canadian Trade Mission will arrive in the United Kingdom on November 22 and will return on December 18. It will consist of more than 50 senior representatives of organisations normally interested in buying outside Canada, including officials of the Federal and Provincial Governments. It will be led by Mr. Gordon Churchill, Minister of Trade & Commerce. The mission is a direct outcome of the recent talks in Canada between Canadian Ministers, the Chancellor of the Exchequer and the President of the Board of Trade. The purpose of the mission will be to assess the possibilities of generally increasing purchases from the United Kingdom and of obtaining from this country products which have previously been purchased elsewhere. It is intended that the mission should see the most outstanding industrial and technical achievements and that manufacturers in particular should have an opportunity of

demonstrating their capacity according to the particular interests expressed by the delegates.

The Churchbury Loop.—In the editorial note on the Churchbury Loop in our issue of November 8, the penultimate line of type was not printed, so that there is an apparent discrepancy in the dates when services were withdrawn. The last lines should read: "... the nature of the country through which the loop ran when ordinary passenger services ceased in 1909—there were special wartime factory services in 1915-1919—has been changed by extensive housing estates."

Petrol and Derv Prices Reduced.—The major oil companies announced on November 12 price reductions of $\frac{1}{4}$ d. a gallon on petrol and $\frac{1}{4}$ d. a gallon on Derv. The reduced price of oil fuel will mean extensive savings for British Railways, which used $7\frac{1}{2}$ million gallons for rail traction alone last year and will use considerably more in the current year. London Transport estimates that it will save £68,000 in a full year, but points out that it will still be paying £166,000 a year more for Derv than before the Suez crisis.

Lorry Falls in Path of "Lancastrian."

—A 10-ton articulated lorry crashed down a railway embankment at the mouth of Kilsby North Tunnel, on the London Midland Region main line, some five miles south of Rugby, on November 5, and fell in the path of the up "Lancastrian." The cab of the lorry was carried some distance under the engine before the train could be halted. The driver was thrown clear; he received injuries and was detained in hospital. Only slight damage was done to the first and second coaches of the train, and none of the passengers received serious injury.

British Timken "Rights" Offer.

—British Timken Limited is to raise fresh capital to carry out expansion and re-equipment plans by a "rights" offer to ordinary shareholders. It was thought earlier that a redeemable note issue would have been the cheapest and the most satisfactory method of raising new money. The share capital is being raised to £5 million by 1,000,000 ordinary £1 shares. It is intended to issue part of the new capital by way of capitalisation of reserves and to offer the remainder to ordinary shareholders for subscription in cash.

British Railways Ferryboat Assists Vessel in Distress.

—The British Railways train ferry *Twickenham Ferry* berthed at Dover at midnight on November 8, three hours late. She had been to the assistance of the *Norlanda*, a Greek ship, off the French coast. It was hoped to disembark the 26 railway wagons on board and turn the vessel round within an hour to take the sleeping cars of the "Night Ferry" to Dunkirk.

West Coast Route Customer Survey.

—Passengers travelling by the principal day express services between Euston and Scotland this week (November 11-16) are being asked specific questions on travel by a team sent out jointly by the Scottish and London Midland Regions of British Railways. The answers to the questions will, it is hoped, enable British Railways to provide even better Anglo-Scottish services on the West Coast route. Passengers are being asked whether they prefer compartment or saloon coaches; whether the times of the trains are con-

Work Study School at Harrogate



Mr. Geoffrey Kitson, Acting Chairman, North Eastern Area Board, talking to a student after opening the new British Railways work study school at Harrogate on October 28 (see our issue of November 1)

venient; where they joined the train, and what opinions they have on the amenities of travel; and many other questions. Members of the team are travelling on the "Caledonian," the "Royal Scot," the "Mid-Day Scot," and the Perth expresses.

Sir Brian Robertson's Visit to Canadian Pacific Railway Workshops.—During his recent tour of North America, Sir Brian Robertson, Chairman of the British Transport Commission, visited the Canadian Pacific Railway Angus Shops, near Montreal. He was shown snowploughs in readiness for winter service, also covered wagons under construction. The shops are currently turning out an order for 300 wagons at the rate of eight a day.

Small Lightweight Diesel Engines.—Arrangements have been made for the large-scale manufacture of lightweight diesel engines in the 8-10 h.p. range, by Drayton Diesels Limited, of West Drayton, Middlesex, a member of the Muir Robb Group. The engines, which have applications to over 50 industries, including small industrial truck manufacturers, are designated Types 34 and 35. The outputs are 8 and 9 h.p. respectively at 2,000 r.p.m. They are of single-cylinder, air-cooled, two-stroke design, employing Uniflow type air scavenging with crankcase pre-compression.

Apprentice Training in the London Midland Region.—In the reference to apprentice training schools on the London Midland Region on page 466 of our October 25 issue, it was stated that the recently-opened school at St. Pancras was the only one which catered for more than one railway engineering department. In fact, the school at Crewe also caters for the training of boys from other technical departments. This will apply also to the Derby Locomotive Training School when the extension is completed at the end of this year, and to the Horwich School when it is completed in 1958.

Eastern Region Traffic Organisation.—The new traffic organisation in the Eastern Region is now approaching completion. On November 18, Mr. G. F. Fiennes will assume the post of Line Traffic Manager (Great Northern), with headquarters at Great Northern House, Euston Road, N.W.1, and Mr. W. G. Thorpe will become Line Traffic Manager (Great Eastern) with headquarters at Hamilton House, Bishopsgate, E.C.2. From that date, Mr. Fiennes and Mr. Thorpe will co-ordinate and manage all traffic activities in their respective territories, along with Mr. J. W. Dedman, who is already Line Traffic Manager (London, Tilbury & Southend), subject to direction on matters of policy from Mr. H. C. Johnson, Assistant General Manager (Traffic). The posts and the departments of Commercial Manager, Motive Power Superintendent, and Operating Superintendent will be abolished. Reference to the new organisation has been made in several issues of this journal.

British Railways Arts & Crafts Exhibition.—The British Railways Staff Association held its third Inter-Regional Exhibition of Arts & Crafts, at Brunswick House, Vauxhall, London, on November 11-13. Exhibits included paintings in oil and water colours; black and white sketches; original posters; all aspects of photography, including colour transparencies; needlework; knitting; crochet; leatherwork; rugs; lamp-

shades; toys; plaster casts; wood carving; and models of all kinds. Over 400 entries were received from staff of all grades throughout British Railways, and from members of their families. The challenge shield awarded annually to the Region gaining the most points in the exhibition and held in 1956-57 by the Eastern and London Midland Regions jointly, was presented to the Western Region on November 13 by Lady Train, wife of Sir J. Landale Train, Member of the British Transport Commission. The winning exhibitors in each class received a silver goblet.

Wage Demands in Western Germany.—Negotiations on wage claims began in Bremen on October 31 between shipbuilding and engineering employers and trade union representatives. The Bremen trade union is asking for a 12 per cent pay increase and a reduction of working hours to 44 a week. A number of engineering unions in other parts of Western Germany is asking for a 10 per cent increase in wages. Dr. Adenauer, the Chancellor of the Federal Republic, is reported to have stated recently that wage agreements which endangered the economy would not be allowed and that the limit had been reached.

Record Number of Visitors to Britain.—By the end of September Britain had welcomed more than a million overseas visitors. Announcing this, the British Travel & Holidays Association states that this is the first year in which the million mark has been passed in the first nine months. In September, 109,000 overseas visitors came to Britain, an increase of 8 per cent compared with September, 1956. Of this total, 52,000 came from European countries, an increase of 3 per cent on September last year. There were 28,500 visitors from the United States, 15 per cent more than in September, 1956, when the total was 24,000. There was a 30 per

cent increase in the number of visitors from Central and South America. Visitors from the Commonwealth are estimated to have numbered 22,000. In the first nine months of this year Britain attracted 1,007,000 visitors.

Two Widnes Stations to be Renamed.—The London Midland Region has announced that two stations, Farnworth and Widnes, are to be renamed. Farnworth is to be known as Widnes North, and Widnes as Widnes South.

Road Haulage Wage Claims.—A wage claim affecting some 200,000 employees in the road haulage industry is being considered by the Transport & General Workers' Union and other trade unions. A claim for an increase of 15 per cent in wages is probable. This is based largely on the effects of reduced journey-times of lorries since the speed limit for heavy vehicles was raised to 30 m.p.h., resulting in less overtime for drivers. The employers are believed to be sympathetic where wages have actually been affected, but they maintain that this applies to only 25 per cent of employees and there is no case for a basic increase to all employees.

"Hustler" Sirens on London Underground.—In an endeavour to reduce the length of station stops on the Underground, London Transport is experimenting with "hustler" sirens to warn passengers when train doors are about to close. The first of these sirens was brought into use at Liverpool Street, Central Line, station on November 11. So that the train service as a whole may run to time, it is necessary to ensure that station stops do not exceed 30 sec., and therefore the siren—a klaxon—will sound 25 sec. after each train has arrived. Posters are being exhibited requesting travellers to co-operate by letting passengers off the trains first and by standing clear of the doors when the siren sounds.

Laying the Foundation Stone of Horwich Apprentice School



Sir J. Landale Train performing the ceremony (see last week's issue)

Forthcoming Meetings

- November 19 (Tue.).—Institute of Transport, Tees-side Section, at the Cleveland Scientific & Technical Institution, Middlesbrough, at 7 p.m. Paper on "Atomic energy in transport," by Mr. H. N. Bassett, United Kingdom Atomic Energy Authority.
- November 20 (Wed.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, at 1, Birdcage Walk, London, S.W.1, at 5.30 p.m. Paper on "Vibrational aspects of bogie design," by Mr. J. Koffman.
- November 20 (Wed.).—Permanent Way Institution, London Section, at the Headquarters of the British Transport Commission, 222, Marylebone Road, N.W.1, at 6.30 p.m. Paper on "Trends in the duties of Permanent Way Inspectors," by Messrs. A. C. Edrich, R. J. Collin, and A. Savill.
- November 20 (Wed.).—Electric Railway Society, Nottingham, in the Board Room, Mechanics Institution, Trinity Square (opposite Victoria Station), at 7.15 p.m. Three short talks by Mr. A. J. Barter, and others, on "Tube stock; traction motors; electric signalling."
- November 21 (Thu.).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, Swansea Section, in the Board Room of the Dock Manager's office, Adelaide Street, Swansea, at 6.45 p.m. Paper on "Modern mining developments in West Wales," by Mr. J. H. Pedley, Mining Engineer in Charge, N.C.B., Cynheidre Colliery.
- November 21 (Thu.).—Diesel Engineers & Users Association, at Caxton Hall, Westminster, S.W.1, at 2.30 p.m. Paper on "Fuel injection equipment," by Mr. G. R. Green.
- November 21 (Thu.).—Institution of Railway Signal Engineers, London Section, at the Institution of Electrical Engineers, Savoy Place, W.C.2, at 6 p.m. Informal meeting—question and answer.
- November 21 (Thu.).—Institute of Transport, Northern Ireland Section, at 21, Linenhall Street, Belfast, at 6 p.m. Paper on "Railway freight charges," by Mr. A. A. Harrison.

Railway Stock Market

After their heavy fall, stock markets steadied and buyers reappeared, but movements on balance, though numerous, were generally small, and most gains have not exceeded more than a few pence in the industrial sections. Selling was less in evidence, and generally the better trend on Wall Street helped sentiment. British Funds have been bought at somewhat higher prices, though the view seems to be widely held that no early reduction in the Bank rate is likely. Company results and half-yearly progress reports have continued to show a downward trend of earnings in most industries, due not only to rising costs, but also, it seems, to increased competition both at home and abroad. Part of the setback no doubt is the result of the credit squeeze; and in the circumstances a fair number of lower dividends seems inevitable, though as far as share prices are concerned, this may very well be more than discounted by the heavy fall in values this year.

There was again only very limited interest in foreign rails, most of which were scarcely tested by dealings. Nevertheless,

Canadian Pacific showed activity, and in line with their usual trend moved closely with Wall Street, and, therefore, reflected the better trend at that centre. The hope appears to have gained ground that a recession in the U.S.A. is improbable now that industry must receive a stimulus from increased expenditure and work to catch up with Russian progress in earth satellites. Canadian Pacific were \$50, compared with \$49 a week ago, while the 4 per cent debentures improved fractionally to £63½, and the 4 per cent preference stock remained at £56½. White Pass shares have rallied from \$14½ to \$15.

Chilean Northern 5 per cent debentures have marked 37, and Cordoba Central "B" debentures 35½. Brazil Rail bonds changed hands down to 4½. Business at 74 was recorded in Costa Rica 6½ per cent first debentures. Elsewhere, there were a fair number of dealings around 2s. 3d. in San Paulo Railway 3s. units, but in other directions, United of Havana second income stock eased to 8.

Antofagasta ordinary stock eased from 26½ to 26, though the preference stock remained at 40, and the 5 per cent (Bolivia) debentures marked 92. Taltal shares changed hands around 14s. 9d. Mexican Central debentures, after last week's rally, eased slightly from 66 to 65½.

The shares of locomotive builders and engineers were inclined to strengthen with the better tendency in stock markets generally. Beyer Peacock 5s. units, for example, were 7s. 9d., compared with 7s. 3d. a week ago, while Charles Roberts 5s. shares improved to 7s. 9d. and Westinghouse Brake were firmer at 29s. Hurst Nelson have remained at 27s. while Wagon Repairs 5s. shares strengthened from 11s. 6d. to 11s. 9d. but Gloucester Wagon 10s. shares, however, eased from 14s. 9d. to 14s. 3d. Birmingham Wagon lost 6d. at 15s. and North British Locomotive reacted to 11s. 7½d. after last week's rally.

OFFICIAL NOTICES

MAN who can write clear, concise English, and has had some technical training, preferably in engineering as applicable to railways, required for Editorial Staff of railway technical journal.—Details of age, training, experience and salary required to Box 467, *The Railway Gazette*, 33 Tothill Street, London, S.W.1.

ENGINEERS, ASSISTANT ENGINEERS, and TECHNICAL ASSISTANTS required for electrical, mechanical and commercial engineering associated with the planning and execution of railway signalling projects in the U.K. and British Commonwealth. Excellent prospects for those interested in light current engineering, electronic and relay circuiting and analysis of railway operating problems from technical or commercial aspects. The positions are pensionable after satisfactory probationary period. Location London or Manchester. Salary according to age, qualifications and experience. Applicants should state their age, educational qualifications and technical experience.—Applications should be sent to: The Manager, Metropolitan-Vickers G.R.S., Limited, 132/135 Long Acre, London, W.C.2.

SENIOR ASSISTANT TRAFFIC SUPERINTENDENTS required by Malayan Railway Administration, Federation of Malaya, for 1 tour of 3 years. Salary scale (including Expatriation Pay and present temporary allowances) equivalent to £1,218 rising to £2,119 a year (single men), £1,440 rising to £2,499 a year (married men), £1,531 rising to £2,730 a year (family men). Commencing salary according to qualifications and experience. Gratuity at rate £232/324 a year. Free passages. Liberal leave on full salary. Candidates must be Corporate Members of the Institute of Transport and have had considerable experience in the Operating and Commercial Departments of a railway.—Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M3/44151/RA.

THE NIGERIAN RAILWAY CORPORATION invites applications for the following post: **SENIOR DRAUGHTSMAN (TRACK)** (Cap'l Works). Salary: £1,150 by £50 to £1,450 p.a. plus £300 overseas pay, on contract with 20 per cent.

gratuity p.a. of total pay. Qualifications: Candidates should have had extensive experience in the design and preparation of working drawings for track layouts and detailing Railway installations. They must be capable of making a permanent way survey. Preference will be given to candidates with experience in the New Works or Permanent Way Section of a first class Railway or with a manufacturing firm, which supplied railway components. Tours: 15 months' tours followed by 15 weeks' leave in U.K. on full pay. Allowances: In addition there are attractive allowances. Send postcards before 30th November, mentioning this paper for further particulars and application form to:—The London Representative, Nigerian Railway Corporation, 9, Northumberland Avenue, London, W.C.2.

JAMAICA OMNIBUS SERVICES LIMITED Vacancy for ASSISTANT TRAFFIC MANAGER Jamaica Omnibus Services Ltd., which operates services in the Corporate Area of Kingston and St. Andrews, Jamaica, with a fleet of 140 modern vehicles, employing a staff of over 800 and having up-to-date headquarters maintenance and office premises, invites applications for the position of Assistant Traffic Manager, with a view to appointment as Traffic Manager within six months, if satisfactory. The appointment, which will be for an initial term of five years and, subject to renewal, will continue thereafter on a three-yearly basis, will carry:—(a) a salary in the region of £1,300 per annum, rising to £1,750 per annum on appointment as Traffic Manager; (b) a rent-free house; (c) paid passage to Jamaica on appointment; (d) three months' home leave on completion of three years' service, with paid return passage for officer and wife (if applicable). Applications, which will be treated in strict confidence, should be addressed to "The Secretary, The B.E.T. Federation, Ltd., Stratton House, Piccadilly, London, W.1" giving full details of qualifications and experience and with a front sheet showing (1) name and address; (2) age and other personal particulars; (3) summary of previous appointments, arranged chronologically; and (4) date available for appointment. In the case of a married applicant with children their ages should be stated.

THE NIGERIAN RAILWAY CORPORATION invites applications for the following post: **SUPERINTENDENT OF TRAINING**. Duties: The officer will be required to organise and supervise the training of about 200 Civil Engineering Department Railway apprentices with the assistance of a staff of full-time instructors. The courses to be covered will include building, permanent way, steelwork and elementary civil engineering, including engineering drawing, surveying and levelling, and design of structures, up to O.N.C. standard. Qualifications: Candidates must have served as Pupil Civil Engineers, preferably with a Railway or public authority, have passed Parts I and II of the examination of the Institution of Civil Engineers or equivalent and have 5 years' experience in technical instruction of engineering apprentices or equivalent experience of teaching in a Technical Institute. Salary: In scale £1,575 by £50 per annum to £1,775 per annum plus £300 per annum Overseas Pay. Starting salary according to qualifications and experience. Appointments may be on pensionable basis or on contract with 20 per cent gratuity per annum of total pay. Tours: 15 months in Nigeria followed by 15 weeks' leave on full pay. Quarters: Partly furnished quarters are provided at low rental. Allowances: There are attractive family, travelling, transport and other allowances. Send postcard before 30th November, 1957, mentioning the post and this paper for further particulars and application form to:—The London Representative, Nigerian Railway Corporation, 9, Northumberland Avenue, London, W.C.2.

FOR SALE OR HIRE, Hudswell Clarke 0-6-0 standard gauge STEAM LOCOMOTIVE, in good condition.—Apply Eagle Construction Co. Ltd., Scunthorpe, Lincolnshire. Phone 4513 (7 lines).

THE Director General of India Store Department, Government Building, Bromyard Avenue, Acton, London, W.3, invites tenders for the supply of:—900 TYRES ROLLED FOR W.G. Locos. and Tenders. Forms of tender may be obtained from the above address on or after 15th November, 1957, at a fee of 10s. which is not returnable. If payment is made by cheque, it should please be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Monday, 30th December, 1957. Please quote reference No. 87/57.DB/RLY.2.

THE DIRECTOR GENERAL, India Store Department, invites tenders for supply of a substantial quantity of RAILWAY ELECTRICAL AND POWER SIGNALLING EQUIPMENT, i.e., Relays Track and Various, Signal Colour Lights various aspects, Point and Signal Machines, Lever Locks, Signal Arms, Point indicators luminous, Key Transmitters Hepper's Type, Signal reversers, Treadles, Station master's control (frame slide type), etc., N.B.—Para 1, page 17, of tender. Firms may quote on the basis of their own specification for equipments which are in use in their country or any other country and need not necessarily be to British Standard Specification, etc., etc. Tenders may be obtained from the India Store Department, Government Building, Bromyard Avenue, Acton, London, W.3, at a cost of 15s. each (which is not refundable) quoting reference S.2765/57/CDN/FD. Tenders should be received in the office of the Director General of Supplies and Disposals, Shahjahan Road, New Delhi, by 1 p.m. on 31st December, 1957.

